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ACTION & REACTION

AMONG other topics discussed on this page last month, I picked an argument with the "linear" theory of historical development. This concept supposes that history advances in a more or less straight ascending line. To extrapolate the possible future, therefore, all we have to do is extend the present upward on a graph.

Actually, history is a constant process of abrupt and dramatic reversals—revolutions are followed by intense conservatism; periods of lax morality lead directly to puritanism; war eventually brings peace; peace, at least thus far, always produces war.

The transitions are *not* gradual. They may not happen overnight, though sometimes they do, but they invariably gather as much momentum and are as hard to head off as a road-roller coasting downhill.

This discussion is not academic nor was the reasoning that led to the observation. Both are intimately connected with the function and writing of science fiction.

We are, of course, concerned with the future. We want to know, first, whether there is likely to be a future; second, what it may look like.

Extrapolation is impossible without the correct tools. The linear theory of history is provably incorrect. Using it must result in the sort of sterile "prophecy" that made 19th century views of the present so naive.

The 20th century is not an extension of the 19th. In just about every way, it is as opposite as it can get. On the same basis, the 21st should be as dissimilar to this one.

Even the idea of a "higher" level is unjustifiable. We have, coexisting today, societal orientations ranging from extreme introversion to equally extreme extroversion. Our increasing accumulation of objective knowledge and comfort may be considered undesirable if our society turns introvert, as it has been in the past and could be again in the future.

Historical momentum is another factor that may or may not apply. The first half of this century saw more change than most millenia. Will that momentum increase or decrease?

Whether they come quickly or slowly, myriad reversals in all spheres of civilization will distinguish the 21st century from the 20th. Since each social action causes an equal and opposite reaction, there should be many re-

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versals. We can't know their exact nature beforehand. All we can do is guess at them. It seems to me that those guesses would be more accurate if they are based on historical action-reaction than linearity.

Now here's another point, just as important, in guessing at the future:

In any society, there are opposing tendencies at work at the same time. They are often so contradictory that they amount to paradox. Here are some broad examples:

• This country is defending freedom—yet it is adopting some of the legal principles of dictatorship.

• At the very same time that civil rights are in jeopardy, there is, according to a recent survey, less intergroup friction than in the past ten years. (Paradoxically, Hollywood, which traditionally shies away from such issues, helped bring this about.)

• The economic interests of the anti-Communist bloc are savagely competitive—and the extent of cooperation against the common danger is seemingly limitless.

• The prestige of Communism is at its lowest in decades—fear of it, at its highest.

• The Communist countries are supposedly immune to the conflicts that divide Capitalist nations—yet Titoism is on the rise, over half the prisoners captured in Korea refuse to go home, and the underground railroad runs one way: out.

These are the biggest visible paradoxes. Used sparingly, they have freshness and even novelty in science fiction. But most writers and would-be writers keep working them over ceaselessly. The really bright themes, of course, are the less apparent ones:

• TV is killing the reading habits of millions—and yet more books and magazines are being sold in the TV areas than ever before.

• Only one out of five is self-employed now, as against four out of five in 1900—and never has there been so much employment and prosperity, taxes or no taxes.

• Security regulations are hampering physical sciences—which are being supported by more money and facilities than at any time.

The opposing tendencies can be found everywhere. The job of the writer is to find those that are least exploited, then give them their head—see how far they will go.

And here's the final paradox: No matter how far he makes them go, he'll still probably be underestimating.

—H. L. GOLD

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SURFACE TENSION

DR. CHATVIEUX took a long time over the microscope, leaving la Ventura with nothing to do but look out at the dead landscape of Hydrot. Waterscape, he thought, would be a better word. The new world had shown only one small, triangular continent, set amid endless ocean; and even the continent was mostly swamp.

The wreck of the seed-ship lay broken squarely across the one real spur of rock Hydrot seemed to possess, which reared a magnificent twenty-one feet above sea-level. From this eminence, la Ventura could see forty miles to

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By JAMES BLISH

Only an aquatic animal could exist on that world and so Man became just that — nor did reduction in size cause a loss of stature!

the horizon across a flat bed of mud. The red light of the star Tau Ceti, glinting upon thousands of small lakes, pools, ponds, and puddles, made the watery plain look like a mosaic of onyx and ruby.

"If I were a religious man," the pilot said suddenly, "I'd call this a plain case of divine vengeance."

Chatvieux said: "Hmn?"

"It's as if we've been struck down for—is it *hubris,* arrogant pride?"

"Well, is it?" Chatvieux said, looking up at last. "I don't feel exactly swollen with pride at the moment. Do you?"

Illustrated by WILLER

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"I'm not exactly proud of my piloting," la Ventura admitted. "But that isn't quite what I meant. I was thinking about why we came here in the first place. It takes arrogant pride to think that you can scatter men, or at least things like men, all over the face of the Galaxy. It takes even more pride to do the job—to pack up all the equipment and move from planet to planet and actually make men suitable for every place you touch."

"I suppose it does," Chatvieux said. "But we're only one of several hundred seed-ships in this limb of the Galaxy, so I doubt that the gods picked us out as special sinners." He smiled drily. "If they had, maybe they'd have left us our ultraphone, so the Colonization Council could hear about our cropper. Besides, Paul, we try to produce men adapted to Earthlike planets, nothing more. We've sense enough—humility enough, if you like — to know that we can't adapt men to Jupiter or to Tau Ceti."

"Anyhow, we're here," la Ventura said grimly. "And we aren't going to get off. Phil tells me that we don't even have our germ-cell bank any more, so we can't seed this place in the usual way. We've been thrown onto a dead world and dared to adapt to it. What are the panatropes going to do—provide built-in waterwings?"

"No," Chatvieux said calmly. "You and I and the rest of us are going to die, Paul. Panatropic techniques don't work on the body, only on the inheritance-carrying factors. We can't give you built-in water-wings, any more than we can give you a new set of brains. I think we'll be able to populate this world with men, but we won't live to see it."

The pilot thought about it, a lump of cold collecting gradually in his stomach. "How long do you give us?" he said at last.

"Who knows? A month, perhaps."

THE bulkhead leading to the wrecked section of the ship was pushed back, admitting salty, muggy air, heavy with carbon dioxide. Philip Strasvogel, the communications officer, came in, tracking mud. Like la Ventura, he was now a man without a function, but it did not appear to bother him. He unbuckled from around his waist a canvas belt into which plastic vials were stuffed like cartridges.

"More samples, Doc," he said. "All alike — water, very wet. I have some quicksand in one boot, too. Find anything?"

"A good deal, Phil. Thanks. Are the others around?"

Strasvogel poked his head out and hallooed. Other voices rang out over the mudflats. Minutes

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later, the rest of the survivors were crowding into the panatrope deck: Saltonstall, Chatvieux's senior assistant; Eunice Wagner, the only remaining ecologist; Eleftherios Venezuelos, the delegate from the Colonization Council; and Joan Heath, a midshipman whose duties, like la Ventura's and Strasvogel's, were now without meaning.

Five men and two women—to colonize a planet on which standing room meant treading water.

They came in quietly and found seats or resting places on the deck, on the edges of tables, in corners.

Venezuelos said: "What's the verdict, Dr. Chatvieux?"

"This place isn't dead," Chatvieux said. "There's life in the sea and in the fresh water, both. On the animal side of the ledger, evolution seems to have stopped with the crustacea; the most advanced form I've found is a tiny crayfish, from one of the local rivulets. The ponds and puddles are well-stocked with protozoa and small metazoans, right up to a wonderfully variegated rotifer population — including a castle-building rotifer like Earth's *Flosculariidae*. The plants run from simple algae to the thalluslike species."

"The sea is about the same," Eunice said, "I've found some of the larger simple metazoans — jellyfish and so on—and some crayfish almost as big as lobsters. But it's normal to find salt-water species running larger than fresh-water."

"In short," Chatvieux said, "We'll survive here—if we fight."

"Wait a minute," la Ventura said. "You've just finished telling me that we wouldn't survive. And you were talking about us, not about the species, because we don't have our germ-cell banks any more. What's—"

"I'll get to that again in a moment," Chatvieux said. "Saltonstall, what would you think of taking to the sea? We came out of it once; maybe we could come out of it again."

"No good," Saltonstall said immediately. "*I* like the idea, but I don't think this planet ever heard of Swinburne, or Homer, either. Looking at it as a colonization problem, as if we weren't involved ourselves, I wouldn't give you a credit for *epi oinopa ponton*. The evolutionary pressure there is too high, the competition from other species is prohibitive; seeding the sea should be the last thing we attempt. The colonists wouldn't have a chance to learn a thing before they were destroyed."

"Why?" la Ventura said. The death in his stomach was becoming hard to placate.

"Eunice, do your sea-going

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Coelenterates include anything like the Portuguese man-of-war?"

The ecologist nodded.

"There's your answer, Paul," Saltonstall said. "The sea is out. It's got to be fresh water, where the competing creatures are less formidable and there are more places to hide."

"We can't compete with a jellyfish?" la Ventura asked, swallowing.

"No, Paul," Chatvieux said. "The panatropes make adaptations, not gods. They take human germ-cells—in this case, our own, since our bank was wiped out in the crash — and modify them toward creatures who can live in any reasonable environment. The result will be manlike and intelligent. It usually shows the donor's personality pattern, too.

"*But we can't transmit memory.* The adapted man is worse than a child in his new environment. He has no history, no techniques, no precedents, not even a language. Ordinarily the seeding teams more or less take him through elementary school before they leave the planet, but we won't survive long enough for that. We'll have to design our colonists with plenty of built-in protections and locate them in the most favorable environment possible, so that at least some of them will survive the learning process."

The pilot thought about it, but nothing occurred to him which did not make the disaster seem realer and more intimate with each passing second. "One of the new creatures can have my personality pattern, but it won't be able to remember being me. Is that right?"

"That's it. There may be just the faintest of residuums—panatropy's given us some data which seem to support the old Jungian notion of ancestral memory. But we're all going to die on Hydrot, Paul. There's no avoiding that. Somewhere we'll leave behind people who behave as we would, think and feel as we would, but who won't remember la Ventura, or Chatvieux, or Joan Heath—or Earth."

The pilot said nothing more. There was a gray taste in his mouth.

"Saltonstall, what do you recommend as a form?"

The panatropist pulled reflectively at his nose. "Webbed extremities, of course, with thumbs and big toes heavy and thornlike for defense until the creature has had a chance to learn. Book-lungs, like the arachnids, working out of intercostal spiracles—they are gradually adaptable to atmosphere-breathing, if it ever decides to come out of the water. Also, I'd suggest sporulation. As an aquatic animal, our colonist is

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going to have an indefinite life-span, but we'll have to give it a breeding cycle of about six weeks to keep its numbers up during the learning period; so there'll have to be a definite break of some duration in its active year. Otherwise it'll hit the population problem before it's learned enough to cope with it."

"Also, it'll be better if our colonists could winter inside a good hard shell," Eunice Wagner added in agreement. "So sporulation's the obvious answer. Most microscopic creatures have it."

"Microscopic?" Phil said incredulously.

"Certainly," Chatvieux said, amused. "We can't very well crowd a six-foot man into a two-foot puddle. But that raises a question. We'll have tough competition from the rotifers, and some of them aren't strictly microscopic. I don't think your average colonist should run under 25 microns, Saltonstall. Give them a chance to slug it out."

"I was thinking of making them twice that big."

"Then they'd be the biggest things in their environment," Eunice Wagner pointed out, "and won't ever develop any skills. Besides, if you make them about rotifer size, I'll give them an incentive for pushing out the castle-building rotifers.

"They'll be able to take over the castles as dwellings."

Chatvieux nodded. "All right, let's get started. While the panatropes are being calibrated, the rest of us can put our heads together on leaving a record for these people. We'll micro-engrave the record on a set of corrosion-proof metal leaves, of a size our colonists can handle conveniently. Some day they may puzzle it out."

"Question," Eunice Wagner said. "Are we going to tell them they're microscopic? I'm opposed to it. It'll saddle their entire early history with a gods-and-demons mythology they'd be better off without."

"Yes, we are," Chatvieux said; and la Ventura could tell by the change in the tone of his voice that he was speaking now as their senior. "These people will be of the race of men, Eunice. We want them to win their way back to the community of men. They are not toys, to be protected from the truth forever in a fresh-water womb."

"I'll make that official," Venezuelos said, and that was that.

And then, essentially, it was all over. They went through the motions. Already they were beginning to be hungry. After la Ventura had had his personality pattern recorded, he was out of it. He sat by himself at the far end of the ledge, watching Tau Ceti

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go redly down, chucking pebbles into the nearest pond, wondering morosely which nameless puddle was to be his Lethe.

He never found out, of course. None of them did.

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OLD Shar set down the heavy metal plate at last, and gazed instead out the window of the castle, apparently resting his eyes on the glowing green-gold obscurity of the summer waters. In the soft fluoresence which played down upon him, from the Noc dozing impassively in the groined vault of the chamber, Lavon could see that he was in fact a young man. His face was so delicately formed as to suggest that it had not been many seasons since he had first emerged from his spore.

But of course there had been no real reason to expect an old man. All the Shars had been referred to traditionally as "old" Shar. The reason, like the reasons for everything else, had been forgotten, but the custom had persisted; the adjective at least gave weight and dignity to the office.

The present Shar belonged to the generation XVI, and hence would have to be at least two seasons younger than Lavon himself. If he was old, it was only in knowledge.

"Lavon, I'm going to have to be honest with you," Shar said at last, still looking out of the tall, irregular window. "You've come to me for the secrets on the metal plates, just as your predecessors did to mine. I can give some of them to you—but for the most part, I don't know what they mean."

"After so many generations?" Lavon asked, surprised. "Wasn't it Shar III who first found out how to read them? That was a long time ago."

The young man turned and looked at Lavon with eyes made dark and wide by the depths into which they had been staring. "I can read what's on the plates, but most of it seems to make no sense. Worst of all, the plates are incomplete. You didn't know that? They are. One of them was lost in a battle during the final war with the Eaters, while these castles were still in their hands."

"What am I here for, then?" Lavon said. "Isn't there anything of value on the remaining plates? Do they really contain 'the wisdom of the Creators' or is that another myth?"

"No. No, that's true," Shar said slowly, "as far as it goes."

HE paused, and both men turned and gazed at the ghostly creature which had appeared suddenly outside the win-

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dow. Then Shar said gravely, "Come in, Para."

The slipper-shaped organism, nearly transparent except for the thousands of black-and-silver granules and frothy bubbles which packed its interior, glided into the chamber and hovered, with a muted whirring of cilia. For a moment it remained silent, probably speaking telepathically to the Noc floating in the vault, after the ceremonious fashion of all the protos. No human had ever intercepted one of these colloquies, but there was no doubt about their reality: humans had used them for long-range communication for generations.

Then the Para's cilia buzzed once more. Each separate hair-like process vibrated at an independent, changing rate; the resulting sound waves spread through the water, intermodulating, reinforcing or canceling each other. The aggregate wave-front, by the time it reached human ears, was recognizable human speech.

"We are arrived, Shar and Lavon, according to the custom."

"And welcome," said Shar. "Lavon, let's leave this matter of the plates for a while, until you hear what Para has to say; that's a part of the knowledge Lavons must have as they come of age, and it comes before the plates. I can give you some hints of what we are. First Para has to tell you something about what we aren't."

LAVON NODDED, willingly enough, and watched the proto as it settled gently to the surface of the hewn table at which Shar had been sitting. There was in the entity such a perfection and economy of organization, such a grace and surety of movement, that he could hardly believe in his own new-won maturity. Para, like all the protos, made him feel not, perhaps, poorly thought-out, but at least unfinished.

"We know that in this universe there is logically no place for man," the gleaming, now immobile cylinder upon the table droned abruptly. "Our memory is the common property to all our races. It reaches back to a time when there were no such creatures as men here. It remembers also that once upon a day there were men here, suddenly, and in some numbers. Their spores littered the bottom; we found the spores only a short time after our season's Awakening, and in them we saw the forms of men slumbering.

"Then men shattered their spores and emerged. They were intelligent, active. And they were gifted with a trait, a character, possessed by no other creature in this world. Not even the savage

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Eaters had it. Men organized us to exterminate the Eaters and therein lay the difference. Men had initiative. We have the word now, which you gave us, and we apply it, but we still do not know what the thing is that it labels."

"You fought beside us," Lavon said.

"Gladly. We would never have thought of that war by ourselves, but it was good and brought good. Yet we wondered. We saw that men were poor swimmers, poor walkers, poor crawlers, poor climbers. We saw that men were formed to make and use tools, a concept we still do not understand, for so wonderful a gift is largely wasted in this universe, and there is no other. What good are tool-useful members such as the hands of men? We do not know. It seems plain that so radical a thing should lead to a much greater rulership over the world than has, in fact, proven to be possible for men."

Lavon's head was spinning. "Para, I had no notion that you people were philosophers."

"The protos are old," Shar said. He had again turned to look out the window, his hands locked behind his back. "They aren't philosophers, Lavon, but they are remorseless logicians. Listen to Para."

"To this reasoning there could be but one outcome," the Para said. "Our strange ally, Man, was like nothing else in this universe. He was and is ill-fitted for it. He does not belong here; he has been —adopted. This drives us to think that there are other universes besides this one, but where these universes might lie, and what their properties might be, it is impossible to imagine. We have no imagination, as men know."

Was the creature being ironic? Lavon could not tell. He said slowly: "Other universes? How could that be true?"

"We do not know," the Para's uninflected voice hummed. Lavon waited, but obviously the proto had nothing more to say.

SHAR had resumed sitting on the window sill, clasping his knees, watching the come and go of dim shapes in the lighted gulf. "It is quite true," he said. "What is written on the remaining plates makes it plain. Let me tell you now what they say.

"*We were made,* Lavon. We were made by men who are not as we are, but men who were our ancestors all the same. They were caught in some disaster, and they made us, and put us here in our universe—so that, even though they had to die, the race of men would live."

Lavon surged up from the woven spyrogrya mat upon which he had been sitting. "You must

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think I'm a fool!" he said sharply.

"No. You're our Lavon; you have a right to know the facts. Make what you like of them." Shar swung his webbed toes back into the chamber. "What I've told you may be hard to believe, but it seems to be so; what Para says backs it up. Our unfitness to live here is self-evident. I'll give you some examples:

"The past four Shars discovered that we won't get any further in our studies until we learn how to control heat. We've produced enough heat chemically to show that even the water around us changes when the temperature gets high enough. But there we're stopped."

"Why?"

"Because heat produced in open water is carried off as rapidly as it's produced. Once we tried to enclose that heat, and we blew up a whole tube of the castle and killed everything in range; the shock was terrible. We measured the pressures that were involved in that explosion, and we discovered that no substance we know could have resisted them. Theory suggests some stronger substances — *but we need heat to form them!*

"Take our chemistry. We live in water. Everything seems to dissolve in water, to some extent. How do we confine a chemical test to the crucible we put it in? How do we maintain a solution at one dilution? I don't know. Every avenue leads me to the same stone door. We're thinking creatures, Lavon, but there's something drastically wrong in the way we think about this universe we live in. It just doesn't seem to lead to results."

Lavon pushed back his floating hair futilely. "Maybe you're thinking about the wrong results. We've had no trouble with warfare, or crops, or practical things like that. If we can't create much heat, well, most of us won't miss it; we don't need any. What's the other universe supposed to be like, the one our ancestors lived in? Is it any better than this one?"

"I don't know," Shar admitted. "It was so different that it's hard to compare the two. The metal plates tell a story about men who were traveling from one place to another in a container that moved by itself. The only analogy I can think of is the shallops of diatom shells that our youngsters use to sled along the thermocline; but evidently what's meant is something much bigger.

"I picture a huge shallop, closed on all sides, big enough to hold many people — maybe twenty or thirty. It had to travel for generations through some kind of space where there wasn't

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any water to breathe, so that the people had to carry their own water and renew it constantly. There were no seasons; no yearly turnover; no ice forming on the sky, because there wasn't any sky in a closed shallop; no spore formation.

"Then the shallop was wrecked somehow. The people in it knew they were going to die. They made us, and put us here, as if we were their children. Because they had to die, they wrote their story on the plates, to tell us what had happened. I suppose we'd understand it better if we had the plate Shar III lost during the war, but we don't."

"The whole thing sounds like a parable," Lavon said, shrugging. "Or a song. I can see why you don't understand it. What I can't see is why you bother to try."

"Because of the plates," Shar said. "You've handled them yourself, so you know that we've nothing like them. We have crude, impure metals we've hammered out, metals that last for a while and then decay. But the plates shine on and on, generation after generation. They don't change; our hammers and graving tools break against them; the little heat we can generate leaves them unharmed. Those plates weren't formed in our universe—and that one fact makes every word on them important to me. Someone went to a great deal of trouble to make those plates indestructible to give them to us. Someone to whom the word 'stars' was important enough to be worth fourteen repetitions, despite the fact that the word doesn't seem to mean anything. I'm ready to think that if our makers repeated the word even twice on a record that seems likely to last forever, it's important for us to know what it means."

"All these extra universes and huge shallops and meaningless words — I can't say that they don't exist, but I don't see what difference it makes. The Shars of a few generations ago spent their whole lives breeding better algae crops for us, and showing us how to cultivate them instead of living haphazardly off bacteria. That was work worth doing. The Lavons of those days evidently got along without the metal plates, and saw to it that the Shars did, too: Well, as far as I'm concerned, you're welcome to the plates, if you like them better than crop improvement — but I think they ought to be thrown away."

"All right," Shar said, shrugging. "If you don't want them, that ends the traditional interview. We'll go our—"

There was a rising drone from the table-top. The Para was lift-

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ing itself, waves of motion passing over its cilia, like the waves which went across the fruiting stalks of the fields of delicate fungi with which the bottom was planted. It had been so silent that Lavon had forgotten it; he could tell from Shar's startlement that Shar had, too.

"This is a great decision," the waves of sound washing from the creature throbbed. "Every proto has heard it and agrees with it. We have been afraid of these metal plates for a long time, afraid that men would learn to understand them and to follow what they say to some secret place, leaving the protos behind. Now we are not afraid."

"There wasn't anything to be afraid of," Lavon said indulgently.

"No Lavon before you had said so," Para said. "We are glad. We will throw the plates away."

With that, the shining creature swooped toward the embrasure. With it, it bore away the remaining plates, which had been resting under it on the table-top, suspended delicately in the curved tips of its supple cilia. With a cry, Shar plunged through the water toward the opening.

"Stop, Para!"

But Para was already gone, so swiftly that he had not even heard the call. Shar twisted his body and brought up on one shoulder against the tower wall. He said nothing. His face was enough. Lavon could not look at it for more than an instant.

The shadows of the two men moved slowly along the uneven cobbled floor. The Noc descended toward them from the vault, its single thick tentacle stirring the water, its internal light flaring and fading irregularly. It, too, drifted through the window after its cousin, and sank slowly away toward the bottom. Gently its living glow dimmed, flickered, winked out.

II

FOR many days, Lavon was able to avoid thinking much about the loss. There was always a great deal of work to be done. Maintenance of the castles, which had been built by the now-extinct Eaters rather than by human hands, was a never-ending task. The thousand dichotomously branching wings tended to crumble, especially at their bases where they sprouted from each other, and no Shar had yet come forward with a mortar as good as the rotifer-spittle which had once held them together. In addition, the breaking through of windows and the construction of chambers in the early days had been haphazard and often unsound. The instinctive architec-

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ture of the rotifers, after all, had not been meant to meet the needs of human occupants.

And then there were the crops. Men no longer fed precariously upon passing bacteria; now there were the drifting mats of specific water-fungi, rich and nourishing, which had been bred by five generations of Shars. These had to be tended constantly to keep the strains pure, and to keep the older and less intelligent species of the protos from grazing on them. In this latter task, to be sure, the more intricate and far-seeing proto types cooperated, but men were needed to supervise.

There had been a time, after the war with the Eaters, when it had been customary to prey upon the slow-moving and stupid diatoms, whose exquisite and fragile glass shells were so easily burst, and who were unable to learn that a friendly voice did not necessarily mean a friend. There were still people who would crack open a diatom when no one else was looking, but they were regarded as barbarians, to the puzzlement of the protos. The blurred and simple-minded speech of the gorgeously engraved plants had brought them into the category of pets — a concept which the protos were utterly unable to grasp, especially since men admitted that diatoms on the half-frustrule were delicious.

Lavon had had to agree, very early, that the distinction was tiny. After all, humans did eat the desmids, which differed from the diatoms only in three particulars: their shells were flexible, they could not move, and they did not speak. Yet to Lavon, as to most men, there did seem to be some kind of distinction, whether the protos could see it or not, and that was that. Under the circumstance he felt that it was a part of his duty, as a leader of men, to protect the diatoms from the occasional poachers who browsed upon them, in defiance of custom, in the high levels of the sunlit sky.

Yet Lavon found it impossible to keep himself busy enough to forget that moment when the last clues to Man's origin and destination had been seized and borne away into dim space.

It might be possible to ask Para for the return of the plates, explain that a mistake had been made. The protos were creatures of implacable logic, but they respected Man, were used to illogic in Man, and might reverse their decision if pressed—

We are sorry. The plates were carried over the bar and released in the gulf. We will have the bottom there searched, but . . .

With a sick feeling he could not repress, Lavon knew that when the protos decided some-

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thing was worthless, they did not hide it in some chamber like old women. They threw it away — efficiently.

Yet despite the tormenting of his conscience, Lavon was convinced that the plates were well lost. What had they ever done for man, except to provide Shars with useless things to think about in the late seasons of their lives? What the Shars themselves had done to benefit Man, here, in the water, in the world, in the universe, had been done by direct experimentation. No bit of useful knowledge ever had come from the plates. There had never been anything in the plates but things best left unthought. The protos were right.

LAVON shifted his position on the plant frond, where he had been sitting in order to overlook the harvesting of an experimental crop of blue-green, oil-rich algae drifting in a clotted mass close to the top of the sky, and scratched his back gently against the coarse bole. The protos were seldom wrong, after all. Their lack of creativity, their inability to think an original thought, was a gift as well as a limitation. It allowed them to see and feel things at all times as they were — not as they hoped they might be, for they had no ability to hope, either.

"La-von! Laa-vah-on!"

The long halloo came floating up from the sleepy depths. Propping one hand against the top of the frond, Lavon bent and looked down. One of the harvesters was looking up at him, holding loosely the adze with which he had been splitting free the glutinous tetrads of the algae.

"Up here. What's the matter?"

"We have the ripened quadrant cut free. Shall we tow it away?"

"Tow it away," Lavon said, with a lazy gesture. He leaned back again. At the same instant, a brilliant reddish glory burst into being above him, and cast itself down toward the depths like mesh after mesh of the finest-drawn gold. The great light which lived above the sky during the day, brightening or dimming according to some pattern no Shar ever had fathomed, was blooming again.

Few men, caught in the warm glow of that light, could resist looking up at it—especially when the top of the sky itself wrinkled and smiled just a moment's climb or swim away. Yet, as always, Lavon's bemused upward look gave him back nothing but his own distorted, bobbling reflection, and a reflection of the plant on which he rested.

Here was the upper limit, the third of the three surfaces of the universe.

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The first surface was the bottom, where the water ended.

The second surface was the thermocline, the invisible division between the colder waters of the bottom and the warm, light waters of the sky. During the height of the warm weather, the thermocline was so definite a division as to make for good sledding and for chilly passage. A real interface formed between the cold, denser bottom waters and the warm reaches above, and maintained itself almost for the whole of the warm season.

The third surface was the sky. One could no more pass through that surface than one could penetrate the bottom, nor was there any better reason to try. There the universe ended. The light which played over it daily, waxing and waning as it chose, seemed to be one of its properties.

Toward the end of the season, the water gradually grew colder and more difficult to breathe, while at the same time the light became duller and stayed for shorter periods between darknesses. Slow currents started to move. The high waters turned chill and began to fall. The bottom mud stirred and smoked away, carrying with it the spores of the fields of fungi. The thermocline tossed, became choppy, and melted away. The sky began to fog with particles of soft silt carried up from the bottom, the walls, the corners of the universe. Before very long, the whole world was cold, inhospitable, flocculent with yellowing, dying creatures.

Then the protos encysted; the bacteria, even most of the plants and, not long afterward, men, too, curled up in their oil-filled amber shells. The world died until the first tentative current of warm water broke the winter silence.

"La-von!"

JUST after the long call, a shining bubble rose past Lavon. He reached out and poked it, but it bounded away from his sharp thumb. The gas-bubbles which rose from the bottom in late summer were almost invulnerable—and when some especially hard blow or edge did penetrate them, they broke into smaller bubbles which nothing could touch, and fled toward the sky, leaving behind a remarkably bad smell.

Gas. There was no water inside a bubble. A man who got inside a bubble would have nothing to breathe.

But, of course, it was impossible to penetrate a bubble. The surface tension was too strong. As strong as Shar's metal plates. As strong as the top of the sky.

As strong as the top of the sky. And above that — once the bubble was broken — a world of gas instead of water? Were all worlds

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bubbles of water drifting in gas?

If it were so, travel between them would be out of the question, since it would be impossible to pierce the sky to begin with. Nor did the infant cosmology include any provisions for bottoms for the worlds.

And yet some of the local creatures did burrow *into* the bottom, quite deeply, seeking something in those depths which was beyond the reach of Man. Even the surface of the ooze, in high summer, crawled with tiny creatures for which mud was a natural medium. Man, too, passed freely between the two countries of water which were divided by the thermocline, though many of the creatures with which he lived could not pass that line at all, once it had established itself.

And if the new universe of which Shar had spoken existed at all, it had to exist beyond the sky, where the light was. Why could not the sky be passed, after all? The fact that bubbles could be broken showed that the surface skin that formed between water and gas wasn't completely invulnerable. Had it ever been tried?

Lavon did not suppose that one man could butt his way through the top of the sky, any more than he could burrow into the bottom, but there might be ways around the difficulty. Here at his back, for instance, was a plant which gave every appearance of continuing beyond the sky: its uppermost fronds broke off and were bent back only by a trick of reflection.

It had always been assumed that the plants died where they touched the sky. For the most part, they did, for frequently the dead extension could be seen, leached and yellow, the boxes of its component cells empty, floating imbedded in the perfect mirror. But some were simply chopped off, like the one which sheltered him now. Perhaps that was only an illusion, and instead it soared indefinitely into some other place — some place where men might once have been born, and might still live . . .

The plates were gone. There was only one other way to find out.

DETERMINEDLY, Lavon began to climb toward the wavering mirror of the sky. His thorn-thumbed feet trampled obliviously upon the clustered sheaves of fragile stippled diatoms. The tulip-heads of Vortae, placid and murmurous cousins of Para, retracted startledly out of his way upon coiling stalks, to make silly gossip behind him.

Lavon did not hear them. He continued to climb doggedly toward the light, his fingers and

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toes gripping the plant-bole.

"Lavon! Where are you going? Lavon!"

He leaned out and looked down. The man with the adze, a doll-like figure, was beckoning to him from a patch of blue-green retreating over a violet abyss. Dizzily he looked away, clinging to the bole; he had never been so high before. Then he began to climb again.

After a while, he touched the sky with one hand. He stopped to breathe. Curious bacteria gathered about the base of his thumb where blood from a small cut was fogging away, scattered at his gesture, and wriggled mindlessly back toward the dull red lure.

He waited until he no longer felt winded, and resumed climbing. The sky pressed down against the top of his head, against the back of his neck, against his shoulders. It seemed to give slightly, with a tough, frictionless elasticity. The water here was intensely bright, and quite colorless. He climbed another step, driving his shoulders against that enormous weight.

It was fruitless. He might as well have tried to penetrate a cliff.

Again he had to rest. While he panted, he made a curious discovery. All around the bole of the water plant, the steel surface

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of the sky curved upward, making a kind of sheath. He found that he could insert his hand into it — there was almost enough space to admit his head as well. Clinging closely to the bole, he looked up into the inside of the sheath, probing with his injured hand. The glare was blinding.

There was a kind of soundless explosion. His whole wrist was suddenly encircled in an intense, impersonal grip, as if it were being cut in two. In blind astonishment, he lunged upward.

The ring of pain traveled smoothly down his upflung arm as he rose, was suddenly around his shoulders and chest. Another lunge and his knees were being squeezed in the circular vise. Another—

Something was horribly wrong. He clung to the bole and tried to gasp, but there was — nothing to breathe.

The water came streaming out of his body, from his mouth, his nostrils, the spiracles in his sides, spurting in tangible jets. An intense and fiery itching crawled over the entire surface of his body. At each spasm, long knives ran into him, and from a great distance he heard more water being expelled from his book-lungs in an obscene, frothy sputtering.

Lavon was drowning.

With a final convulsion, he kicked himself away from the splintery bole, and fell. A hard impact shook him; and then the water, which had clung to him so tightly when he had first attempted to leave it, took him back with cold violence.

Sprawling and tumbling grotesquely, he drifted, down and down and down, toward the bottom.

III

FOR many days, Lavon lay curled insensibly in his spore, as if in the winter sleep. The shock of cold which he had felt on re-entering his native universe had been taken by his body as a sign of coming winter, as it had taken the oxygen-starvation of his brief sojourn above the sky. The spore-forming glands had at once begun to function.

Had it not been for this, Lavon would surely have died. The danger of drowning disappeared even as he fell, as the air bubbled out of his lungs and readmitted the life-giving water. But for acute dessication and third degree sunburn, the sunken universe knew no remedy. The healing amnionic fluid generated by the spore-forming glands, after the transparent amber sphere had enclosed him, offered Lavon his only chance.

The brown sphere was spotted after some days by a prowling

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ameba, quiescent in the eternal winter of the bottom. Down there the temperature was always an even 4°, no matter what the season, but it was unheard of that a spore should be found there while the high epilimnion was still warm and rich in oxygen.

Within an hour, the spore was surrounded by scores of astonished protos, jostling each other to bump their blunt eyeless prows against the shell. Another hour later, a squad of worried men came plunging from the castles far above to press their own noses against the transparent wall. Then swift orders were given.

Four Para grouped themselves about the amber sphere, and there was a subdued explosion as the trichocysts which lay embedded at the bases of their cilia, just under the pellicle, burst and cast fine lines of a quickly solidifying liquid into the water. The four Paras thrummed and lifted, tugging.

Lavon's spore swayed gently in the mud and then rose slowly, entangled in the web. Nearby, a Noc cast a cold pulsating glow over the operation — not for the Paras, who did not need the light, but for the baffled knot of men. The sleeping figure of Lavon, head bowed, knees drawn up to its chest, revolved with an absurd solemnity inside the shell as it was moved.

"Take him to Shar, Para."

THE young Shar justified, by minding his own business, the traditional wisdom with which his hereditary office had invested him. He observed at once that there was nothing he could do for the encysted Lavon which would not be classifiable as simple meddling.

He had the sphere deposited in a high tower room of his castle, where there was plenty of light and the water was warm, which should suggest to the hibernating form that spring was again on the way. Beyond that, he simply sat and watched, and kept his speculations to himself.

Inside the spore, Lavon's body seemed rapidly to be shedding its skin, in long strips and patches. Gradually, his curious shrunkenness disappeared. His withered arms and legs and sunken abdomen filled out again.

The days went by while Shar watched. Finally he could discern no more changes, and, on a hunch, had the spore taken up to the topmost battlements of the tower, into the direct daylight.

An hour later, Lavon moved in his amber prison.

He uncurled and stretched, turned blank eyes up toward the light. His expression was that of a man who had not yet awakened from a ferocious nightmare. His

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whole body shone with a strange pink newness.

Shar knocked gently on the wall of the spore. Lavon turned his blind face toward the sound, life coming into his eyes. He smiled tentatively and braced his hands and feet against the inner wall of the shell.

The whole sphere fell abruptly to pieces with a sharp crackling. The amnionic fluid dissipated around him and Shar, carrying away with it the suggestive odor of a bitter struggle against death.

Lavon stood among the bits of shell and looked at Shar silently. At last he said:

"Shar—I've been beyond the sky."

"I know," Shar said gently.

Again Lavon was silent. Shar said, "Don't be humble, Lavon. You've done an epoch-making thing. It nearly cost you your life. You must tell me the rest—all of it."

"The rest?"

"You taught me a lot while you slept. Or are you still opposed to useless knowledge?"

Lavon could say nothing. He no longer could tell what he knew from what he wanted to know. He had only one question left, but he could not utter it. He could only look dumbly into Shar's delicate face.

"You have answered me," Shar said, even more gently. "Come, my friend; join me at my table. We will plan our journey to the stars."

IT was two winter sleeps after Lavon's disastrous climb beyond the sky that all work on the spaceship stopped. By then, Lavon knew that he had hardened and weathered into that temporarily ageless state a man enters after he has just reached his prime; and he knew also that there were wrinkles engraved upon his brow, to stay and to deepen.

"Old" Shar, too, had changed, his features losing some of their delicacy as he came into his maturity. Though the wedge-shaped bony structure of his face would give him a withdrawn and poetic look for as long as he lived, participation in the plan had given his expression a kind of executive overlay, which at best gave it a masklike rigidity, and at worst coarsened it somehow.

Yet despite the bleeding away of the years, the spaceship was still only a hulk. It lay upon a platform built above the tumbled boulders of the sandbar which stretched out from one wall of the world. It was an immense hull of pegged wood, broken by regularly spaced gaps through which the raw beams of the skeleton could be seen.

Work upon it had progressed

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fairly rapidly at first, for it was not hard to visualize what kind of vehicle would be needed to crawl through empty space without losing its water. It had been recognized that the sheer size of the machine would enforce a long period of construction, perhaps two full seasons; but neither Shar nor Lavon had anticipated any serious snag.

For that matter, part of the vehicle's apparent incompleteness was an illusion. About a third of its fittings were to consist of living creatures, which could not be expected to install themselves in the vessel much before the actual takeoff.

Yet time and time again, work on the ship had had to be halted for long periods. Several times whole sections needed to be ripped out, as it became more and more evident that hardly a single normal, understandable concept could be applied to the problem of space travel.

The lack of the history plates, which the Para steadfastly refused to deliver up, was a double handicap. Immediately upon their loss, Shar had set himself to reproduce them from memory; but unlike the more religious of his people, he had never regarded them as holy writ, and hence had never set himself to memorizing them word by word. Even before the theft, he had accumulated a set of variant translations of passages presenting specific experimental problems, which were stored in his library, carved in wood. But most of these translations tended to contradict each other, and none of them related to spaceship construction, upon which the original had been vague in any case.

No duplicates of the cryptic characters of the original had ever been made, for the simple reason that there was nothing in the sunken universe capable of destroying the originals, nor of duplicating their apparently changeless permanence. Shar remarked too late that through simple caution they should have made a number of verbatim temporary records — but after generations of green-gold peace, simple caution no longer covers preparation against catastrophe. (Nor, for that matter, did a culture which had to dig each letter of its simple alphabet into pulpy waterlogged wood with a flake of stonewort, encourage the keeping of records in triplicate.)

As a result, Shar's imperfect memory of the contents of the history plates, plus the constant and millenial doubt as to the accuracy of the various translations, proved finally to be the worst obstacle to progress on the spaceship itself.

"Men must paddle before they

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can swim," Lavon observed belatedly, and Shar was forced to agree with him.

Obviously, whatever the ancients had known about spaceship construction, very little of that knowledge was usable to a people still trying to build its first spaceship from scratch. In retrospect, it was not surprising that the great hulk still rested incomplete upon its platform above the sand boulders, exuding a musty odor of wood steadily losing its strength, two generations after its flat bottom had been laid down.

THE fat-faced young man who headed the strike delegation was Phil XX, a man two generations younger than Lavon, four younger than Shar. There were crow's-feet at the corners of his eyes, which made him look both like a querulous old man and like an infant spoiled in the spore.

"We're calling a halt to this crazy project," he said bluntly. "We've slaved our youth away on it, but now that we're our own masters, it's over, that's all. Over."

"Nobody's compelled you," Lavon said angrily.

"Society does; our parents do," a gaunt member of the delegation said. "But now we're going to start living in the real world. Everybody these days knows that there's no other world but this one. You oldsters can hang on to your superstitions if you like. We don't intend to."

Baffled, Lavon looked over at Shar. The scientist smiled and said, "Let them go, Lavon. We have no use for the faint-hearted."

The fat-faced young man flushed. "You can't insult us into going back to work. We're through. Build your own ship to no place!"

"All right," Lavon said evenly. "Go on, beat it. Don't stand around here orating about it. You've made your decision and we're not interested in your self-justifications. Good-by."

The fat-faced young man evidently still had quite a bit of heroism to dramatize which Lavon's dismissal had short-circuited. An examination of Lavon's stony face, however, convinced him that he had to take his victory as he found it. He and the delegation trailed ingloriously out the archway.

"Now what?" Lavon asked when they had gone. "I must admit, Shar, that I would have tried to persuade them. We do need the workers, after all."

"Not as much as they need us," Shar said tranquilly. "How many volunteers have you got for the crew of the ship?"

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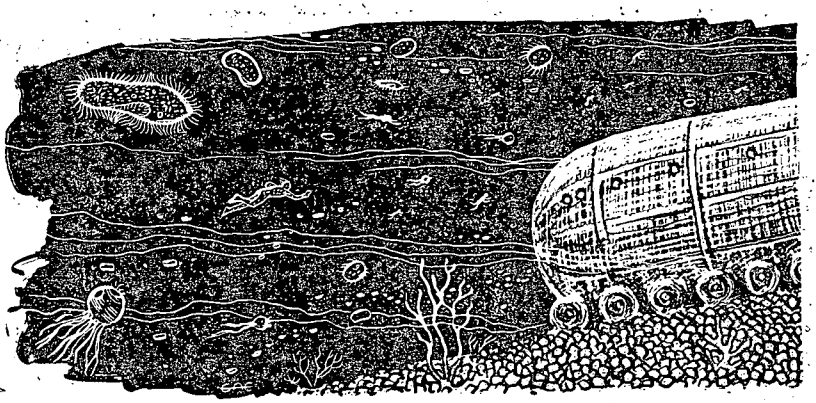

"Hundreds. Every young man of the generation after Phil's wants to go along. Phil's wrong about that segment of the population, at least. The project catches the imagination of the very young."

"Did you give them any encouragement?"

"Sure," Lavon said. "I told them we'd call on them if they were chosen. But you can't take that seriously! We'd do badly to displace our picked group of specialists with youths who have enthusiasm and nothing else."

"That's not what I had in mind, Lavon. Didn't I see a Noc in your chambers somewhere? Oh, there he is, asleep in the dome. Noc!"

The creature stirred its tentacles lazily.

"Noc, I've a message," Shar called. "The protos are to tell all men that those who wish to go to the next world with the spaceship must come to the staging area right away. Say that we can't promise to take everyone, but that only those who help us build the ship will be considered at all."

The Noc curled its tentacles again and appeared to go back to sleep. Actually, of course, it was sending its message through the water in all directions.

IV

LAVON turned from the arrangement of speaking-tube megaphones which was his control board and looked at the Para. "One last try," he said.

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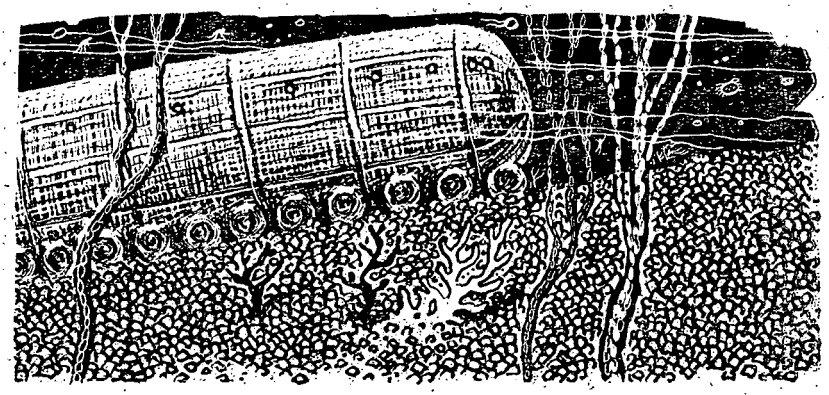

"Will you give us back the plates?"

"No, Lavon. We have never denied you anything before, but this we must."

"You're going with us though, Para. Unless you give us the knowledge we need, you'll lose your life if we lose ours."

"What is one Para?" the creature said. "We are all alike. This cell will die; but the protos need to know how you fare on this journey. We believe you should make it without the plates."

"Why?"

The proto was silent. Lavon stared at it a moment, then turned deliberately back to the speaking tubes. "Everyone hang on," he said. He felt shaky. "We're about to start. Tol, is the ship sealed?"

"As far as I can tell, Lavon."

Lavon shifted to another megaphone. He took a deep breath. Already the water seemed stifling, though the ship hadn't moved.

"Ready with one-quarter power. One, two, three, go."

The whole ship jerked and settled back into place again. The raphe diatoms along the under hull settled into their niches, their jelly treads turning against broad endless belts of crude leather. Wooden gears creaked, stepping up the slow power of the creatures, transmitting it to the sixteen axles of the ship's wheels.

The ship rocked and began to roll slowly along the sandbar. Lavon looked tensely through the mica port. The world flowed painfully past him. The ship

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canted and began to climb the slope. Behind him, he could feel the electric silence of Shar, Para, the two alternate pilots, as if their gaze were stabbing directly through his body and on out the port. The world looked different, now that he was leaving it. How had he missed all this beauty before?

The slapping of the endless belts and the squeaking and groaning of the gears and axles grew louder as the slope steepened. The ship continued to climb, lurching. Around it, squadrons of men and protos dipped and wheeled, escorting it toward the sky.

Gradually the sky lowered and pressed down toward the top of the ship.

"A little more work from your diatoms, Tanol," Lavon said. "Boulder ahead." The ship swung ponderously. "All right, slow them up again. Give us a shove from your side. Than — no, that's too much — there, that's it. Back to normal; you're still turning us! Tanol, give us one burst to line us up again. Good. All right, steady drive on all sides. Won't be long now."

"How can you think in webs like that?" the Para wondered behind him.

"I just do, that's all. It's the way men think. Overseers, a little more thrust now; the grade's getting steeper."

The gears groaned. The ship nosed up. The sky brightened in Lavon's face. Despite himself, he began to be frightened. His lungs seemed to burn, and in his mind he felt his long fall through nothingness toward the chill slap of water as if he were experiencing it for the first time. His skin itched and burned. Could he go up *there* again? Up there into the burning void, the great gasping agony where no life should go?

THE sandbar began to level out and the going became a little easier. Up here, the sky was so close that the lumbering motion of the huge ship disturbed it. Shadows of wavelets ran across the sand. Silently, the thick-barreled bands of blue-green algae drank in the light and converted it to oxygen, writhing in their slow mindless dance just under the long mica skylight which ran along the spine of the ship. In the hold, beneath the latticed corridor and cabin floors, whirring Vortae kept the ship's water in motion, fueling themselves upon drifting organic particles.

One by one, the figures wheeling about the ship outside waved arms or cilia and fell back, coasting down the slope of the sandbar toward the familiar world, dwindling and disappearing. There was at last only one single

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Euglena, half-plant cousin of the protos, forging along beside the spaceship into the marches of the shallows. It loved the light, but finally it, too, was driven away into cooler, deeper waters, its single whiplike tentacle undulating placidly as it went. It was not very bright, but Lavon felt deserted when it left.

Where they were going, though, none could follow.

Now the sky was nothing but a thin, resistant skin of water coating the top of the ship. The vessel slowed, and when Lavon called for more power, it began to dig itself in among the sand-grains.

"That's not going to work," Shar said tensely. "I think we'd better step down the gear ratio, Lavon, so you can apply stress more slowly."

"All right," Lavon agreed. "Full stop, everybody. Shar, will you supervise gear-changing, please?"

INSANE brilliance of empty space looked Lavon full in the face just beyond his big mica bull's eye. It was maddening to be forced to stop here upon the threshold of infinity; and it was dangerous, too. Lavon could feel building in him the old fear of the outside. A few moments more of inaction, he knew with a gathering coldness at the pit of his stomach, and he would be unable to go through with it.

Surely, he thought, there must be a better way to change gear-ratios than the traditional one, which involved dismantling almost the entire gear-box. Why couldn't a number of gears of different sizes be carried on the same shaft, not necessarily all in action all at once, but awaiting use simply by shoving the axle back and forth longitudinally in its sockets? It would still be clumsy, but it could be worked on orders from the bridge and would not involve shutting down the entire machine — and throwing the new pilot into a blue-green funk.

Shar came lunging up through the trap and swam himself a stop.

"All set," he said. "The big reduction gears aren't taking the strain too well, though."

"Splintering?"

"Yes. I'd go it slow at first."

Lavon nodded mutely. Without allowing himself to stop, even for a moment, to consider the consequences of his words, he called: "Half power."

The ship hunched itself down again and began to move, very slowly indeed, but more smoothly than before. Overhead, the sky thinned to complete transparency. The great light came blasting in. Behind Lavon there was an-

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easy stir. The whiteness grew at the front ports.

Again the ship slowed, straining against the blinding barrier. Lavon swallowed and called for more power. The ship groaned like something about to die. It was now almost at a standstill.

"More power," Lavon ground out.

ONCE more, with infinite slowness, the ship began to move. Gently, it tilted upward.

Then it lunged forward and every board and beam in it began to squall.

"Lavon! Lavon!"

Lavon started sharply at the shout. The voice was coming at him from one of the megaphones, the one marked for the port at the rear of the ship.

"Lavon!"

"What is it? Stop your damn yelling."

"I can see the top of the sky! From the *other* side, from the top side! It's like a big flat sheet of metal. We're going away from it. We're above the sky, Lavon, we're above the sky!"

Another violent start swung Lavon around toward the forward port. On the outside of the mica, the water was evaporating with shocking swiftness, taking with it strange distortions and patterns made of rainbows.

Lavon saw Space.

IT was at first like a deserted and cruelly dry version of the bottom. There were enormous boulders, great cliffs, tumbled, split, riven, jagged rocks going up and away in all directions.

But it had a sky of its own—a deep blue dome so far away that he could not believe in, let alone compute, what its distance might be. And in this dome was a ball of white fire that seared his eyeballs.

The wilderness of rock was still a long way away from the ship, which now seemed to be resting upon a level, glistening plain. Beneath the surface-shine, the plain seemed to be made of sand, nothing but familiar sand, the same substance which had heaped up to form a bar in Lavon's own universe, the bar along which the ship had climbed. But the glassy, colorful skin over it—

Suddenly Lavon became conscious of another shout from the megaphone banks. He shook his head savagely and asked, "What is it now?"

"Lavon, this is Than. What have you gotten us into? The belts are locked. The diatoms can't move them. They aren't faking, either; we've rapped them hard enough to make them think we were trying to break their shells, but they still can't give us more power."

"Leave them alone," Lavon

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snapped. "They can't fake; they haven't enough intelligence. If they say they can't give you more power, they can't."

"Well, then, you get us out of it," Than's voice said frightenedly.

Shar came forward to Lavon's elbow. "We're on a space-water interface, where the surface tension is very high," he said softly. "This is why I insisted on our building the ship so that we could lift the wheels off the ground whenever necessary. For a long while I couldn't understand the reference of the history plates to 'retractable landing gear,' but it finally occurred to me that the tension along a space-water interface — or, to be more exact, a space-mud interface — would hold any large object pretty tightly. If you order the wheels pulled up now, I think we'll make better progress for a while on the belly-treads."

"Good enough," Lavon said. "Hello below — up landing gear. Evidently the ancients knew their business after all, Shar."

QUITE a few minutes later, for shifting power to the belly treads involved another setting of the gear box, the ship was crawling along the shore toward the tumbled rock. Anxiously, Lavon scanned the jagged, threatening wall for a break. There was a sort of rivulet off toward the left which might offer a route, though a dubious one, to the next world. After some thought, Lavon ordered his ship turned toward it.

"Do you suppose that thing in the sky is a 'star'?" he asked. "But there were supposed to be lots of them. Only one is up there — and one's plenty for *my* taste."

"I don't know," Shar admitted. "But I'm beginning to get a picture of the way the universe is made, I think. Evidently our world is a sort of cup in the bottom of this huge one. This one has a sky of its own; perhaps it, too, is only a cup in the bottom of a still huger world, and so on and on without end. It's a hard concept to grasp, I'll admit. Maybe it would be more sensible to assume that all the worlds are cups in this one common surface, and that the great light shines on them all impartially."

"Then what makes it seem to go out every night, and dim even in the day during winter?" Lavon demanded.

"Perhaps it travels in circles, over first one world, then another. How could I know yet?"

"Well, if you're right, it means that all we have to do is crawl along here for a while, until we hit the top of the sky of another world," Lavon said. "Then we dive in. Somehow it seems too

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simple, after all our preparations."

Shar chuckled, but the sound did not suggest that he had discovered anything funny. "Simple? Have you noticed the temperature yet?"

Lavon had noticed it, just beneath the surface of awareness, but at Shar's remark he realized that he was gradually being stifled. The oxygen content of the water, luckily, had not dropped, but the temperature suggested the shallows in the last and worst part of the autumn. It was like trying to breathe soup.

"Than, give us more action from the Vortae," Lavon called. "This is going to be unbearable unless we get more circulation."

It was all he could do now to keep his attention on the business of steering the ship.

The cut or defile in the scattered razor-edged rocks was a little closer, but there still seemed to be many miles of rough desert to cross. After a while, the ship settled into a steady, painfully slow crawling, with less pitching and jerking than before, but also with less progress. Under it, there was now a sliding, grinding sound, rasping against the hull of the ship itself, as if it were treadmilling over some coarse lubricant whose particles were each as big as a man's head.

Finally Shar said, "Lavon, we'll have to stop again. The sand this far up is dry, and we're wasting energy using the treads."

"Are you sure we can take it?" Lavon asked, gasping for breath. "At least we are moving. If we stop to lower the wheels and change gears again, we'll boil."

"We'll boil if we don't," Shar said calmly. "Some of our algae are already dead and the rest are withering. That's a pretty good sign that we can't take much more. I don't think we'll make it into the shadows, unless we do change over and put on some speed."

There was a gulping sound from one of the mechanics. "We ought to turn back," he said raggedly. "We were never meant to be out here in the first place. We were made for the water, not this hell."

"We'll stop," Lavon said, "but we're not turning back. That's final."

The words made a brave sound, but the man had upset Lavon more than he dared to admit, even to himself. "Shar," he said, "make it fast, will you?"

The scientist nodded and dived below.

THE minutes stretched out. The great white globe in the sky blazed and blazed. It had moved down the sky, far down, so that the light was pouring into

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the ship directly in Lavon's face, illuminating every floating particle, its rays like long milky streamers. The currents of water passing Lavon's cheek were almost hot.

How could they dare go directly forward into that inferno? The land directly under the "star" must be even hotter than it was here!

"Lavon! Look at Para!"

Lavon forced himself to turn and look at his proto ally. The great slipper had settled to the deck, where it was lying with only a feeble pulsation of its cilia. Inside, its vacuoles were beginning to swell, to become bloated, p e a r - s h a p e d bubbles, crowding the granulated protoplasm, pressing upon the dark nuclei.

"This cell is dying," Para said, as coldly as always. "But go on—go on. There is much to learn, and you may live, even though we do not. Go on."

"You're . . . for us now?" Lavon whispered.

"We have always been for you. Push your folly to its uttermost. We will benefit in the end, and so will Man."

The whisper died away. Lavon called the creature again, but it did not respond.

There was a wooden clashing from below, and then Shar's voice came tinnily from one of the megaphones. "Lavon, go ahead! The diatoms are dying, too, and then we'll be without power. Make it as quickly and directly as you can."

Grimly, Lavon leaned forward. "The 'star' is directly over the land we're approaching."

"It is? It may go lower still and the shadows will get longer. That's our only hope."

Lavon had not thought of that. He rasped into the banked megaphones. Once more, the ship began to move.

It got hotter.

Steadily, with a perceptible motion, the "star" sank in Lavon's face. Suddenly a new terror struck him. Suppose it should continue to go down until it was gone entirely? Blasting though it was now, it was the only source of heat. Would not space become bitter cold on the instant — and the ship an expanding, bursting block of ice?

The shadows lengthened menacingly, stretched across the desert toward the forward-rolling vessel. There was no talking in the cabin, just the sound of ragged breathing and the creaking of the machinery.

T h e n the jagged horizon seemed to rush upon them. Stony teeth cut into the lower rim of the ball of fire, devoured it swiftly. It was gone.

They were in the lee of the

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cliffs. Lavon ordered the ship turned to parallel the rock-line; it responded heavily, sluggishly. Far above, the sky deepened steadily, from blue to indigo.

SHAR came silently up through the trap and stood beside Lavon, studying that deepening color and the lengthening of the shadows down the beach toward their world. He said nothing, but Lavon knew that the same chilling thought was in his mind.

"Lavon."

Lavon jumped. Shar's voice had iron in it. "Yes?"

"We'll have to keep moving. We must make the next world, wherever it is, very shortly."

"How can we dare move when we can't see where we're going? Why not sleep it over — if the cold will let us?"

"It will let us," Shar said. "It can't get dangerously cold up here. If it did, the sky — or what we used to think of as the sky — would have frozen over every night, even in summer. But what I'm thinking about is the water. The plants will go to sleep now. In our world that wouldn't matter; the supply of oxygen is enough to last through the night. But in this confined space, with so many creatures in it and no source of fresh water, we will probably smother."

Shar seemed hardly to be involved at all, but spoke rather with the voice of implacable physical laws.

"Furthermore," he said, staring unseeingly out at the raw landscape, "the diatoms are plants, too. In other words, we must stay on the move for as long as we have oxygen and power — and pray that we make it."

"Shar, we had quite a few protos on board this ship once. And Para there isn't quite dead yet. If he were, the cabin would be intolerable. The ship is nearly sterile of bacteria, because all the protos have been eating them as a matter of course and there's no outside supply of them, any more than there is for oxygen. But still and all there would have been some decay."

Shar bent and tested the pellicle of the motionless Para with a probing finger. "You're right, he's still alive. What does that prove?"

"The Vortae are also alive; I can feel the water circulating. Which proves it wasn't the heat that hurt Para. *It was the light.* Remember how badly my skin was affected after I climbed beyond the sky? Undiluted starlight is deadly. We should add that to the information on the plates."

"I still don't see the point."

"It's this. We've got three or four Noc down below. They were shielded from the light, and so

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must be alive. If we concentrate them in the diatom galleys, the dumb diatoms will think it's still daylight and will go on working. Or we can concentrate them up along the spine of the ship, and keep the algae putting out oxygen. So the question is: which do we need more, oxygen or power? Or can we split the difference?"

Shar actually grinned. "A brilliant piece of thinking. We'll make a Shar of you yet, Lavon. No, I'd say that we can't split the difference. There's something about daylight, some quality, that the light Noc emits doesn't have. You and I can't detect it, but the green plants can, and without it they don't make oxygen. So we'll have to settle for the diatoms — for power."

Lavon brought the vessel away from the rocky lee of the cliff, out onto the smoother sand. All trace of direct light was gone now, although there was still a soft, general glow on the sky.

"Now, then," Shar said thoughtfully, "I would guess that there's water over there in the canyon, if we can reach it. I'll go below and arrange —"

Lavon gasped, "What's the matter?"

Silently, Lavon pointed, his heart pounding.

The entire dome of indigo above them was spangled with tiny, incredibly brilliant lights. There were hundreds of them, and more and more were becoming visible as the darkness deepened. And far away, over the ultimate edge of the rocks, was a dim° red globe, crescented with ghostly silver. Near the zenith was another such body, much smaller, and silvered all over . . .

Under the two moons of Hydrot, and under the eternal stars, the two-inch wooden spaceship and its microscopic cargo toiled down the slope toward the drying little rivulet.

V

THE ship rested on the bottom of the canyon for the rest of the night. The great square doors were thrown open to admit the raw, irradiated, life-giving water from outside — and the wriggling bacteria which were fresh food.

No other creatures approached them, either with curiosity or with predatory intent, while they slept, though Lavon had posted guards at the doors. Evidently, even up here on the very floor of space, highly organized creatures were quiescent at night.

But when the first flush of light filtered through the water, trouble threatened.

First of all, there was the bug-eyed monster. The thing was green and had two snapping claws, either one of which could

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have broken the ship in two like a spyrogyra straw. Its eyes were black and globular, on the ends of short columns, and its long feelers were as thick as a plant-bole. It passed in a kicking fury of motion, however, never noticing the ship at all.

"Is that — a sample of the kind of life we can expect in the next world?" Lavon whispered. Nobody answered, for the very good reason that nobody knew.

After a while, Lavon risked moving the ship forward against the current, which was slow but heavy. Enormous writhing worms whipped past them. One struck the hull a heavy blow, then thrashed on obliviously.

"They don't notice us," Shar said. "We're too small. Lavon, the ancients warned us of the immensity of space, but even when you see it, it's impossible to grasp. And all those stars — can they mean what I think they mean? It's beyond thought, beyond belief!"

"The bottom's sloping," Lavon said, looking ahead intently. "The walls of the canyon are retreating, and the water's becoming rather silty. Let the stars wait, Shar; we're coming toward the entrance of our new world."

Shar subsided moodily. His vision of space had disturbed him, perhaps seriously. He took little notice of the great thing that was happening, but instead huddled worriedly over his own expanding speculations. Lavon felt the old gap between their two minds widening once more.

Now the bottom was tilting upward again. Lavon had no experience with delta-formation, for no rivulets left his own world, and the phenomenon worried him. But his worries were swept away in wonder as the ship topped the rise and nosed over.

Ahead, the bottom sloped away again, indefinitely, into glimmering depths. A proper sky was over them once more, and Lavon could see small rafts of plankton

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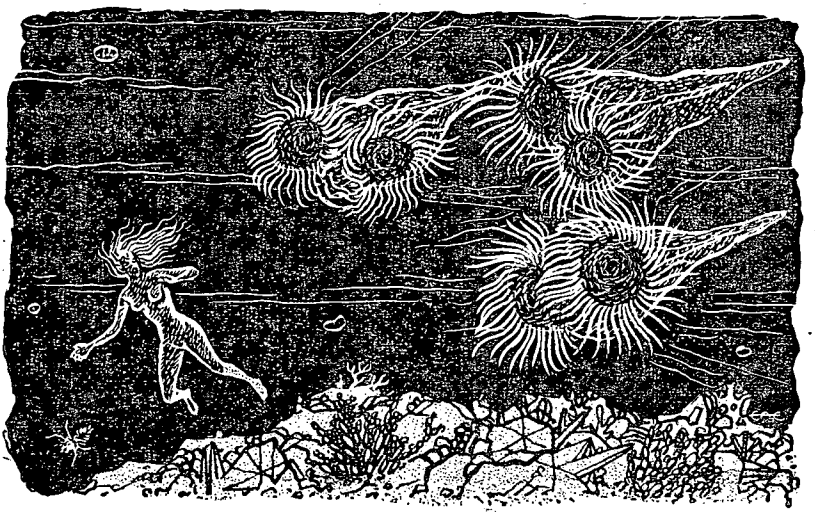

floating placidly beneath it. Almost at once, too, he saw several of the smaller kinds of protos, a few of which were already approaching the ship—

THEN the girl came darting out of the depths, her features distorted with terror. At first she did not see the ship at all. She came twisting and turning lithely through the water, obviously hoping only to throw herself over the ridge of the delta and into the savage streamlet beyond.

Lavon was stunned. Not that there were men here — he had hoped for that—but at the girl's single-minded flight toward suicide.

"What—"

Then a dim buzzing began to grow in his ears, and he understood.

"Shar! Than! Tanol!" he bawled. "Break out crossbows and spears! Knock out all the windows!" He lifted a foot and kicked through the big port in front of him. Someone thrust a crossbow into his hand.

"Eh? What's happening?" Shar blurted.

"*Rotifers!*"

The cry went through the ship like a galvanic shock. The rotifers

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back in Lavon's own world were virtually extinct, but everyone knew thoroughly the grim history of the long battle man and proto had waged against them.

The girl spotted the ship suddenly and paused, stricken by despair at the sight of the new monster. She drifted with her own momentum, her eyes alternately fixed hypnotically upon the ship and glancing back over her shoulder, toward where the buzzing snarled louder and louder in the dimness.

"Don't stop!" Lavon shouted. "This way, this way! We're friends! We'll help!"

Three great semi-transparent trumpets of smooth flesh bored over the rise, the many thick cilia of their coronas whirring greedily. Dicrans—the most predacious of the entire tribe of Eaters. They were quarreling thickly among themselves as they moved, with the few blurred, pre-symbolic noises which made up their "language."

CAREFULLY, Lavon wound the crossbow, brought it to his shoulder, and fired. The bolt sang away through the water. It lost momentum rapidly, and was caught by a stray current which brought it closer to the girl than to the Eater at which Lavon had aimed.

He bit his lip, lowered the weapon, wound it up again. It did not pay to underestimate the range; he would have to wait until he could fire with effect. Another bolt, cutting through the water from a side port, made him issue orders to cease firing.

The sudden irruption of the rotifers decided the girl. The motionless wooden monster was strange to her and had not yet menaced her—but she must have known what it would be like to have three Dicrans over her, each trying to grab away from the other the biggest share. She threw herself toward the big port. The Eaters screamed with fury and greed and bored after her.

She probably would not have made it, had not the dull vision of the lead Dicran made out the wooden shape of the ship at the last instant. It backed off, buzzing, and the other two sheered away to avoid colliding with it. After that they had another argument, though they could hardly have formulated what it was that they were fighting about. They were incapable of saying anything much more complicated than the equivalent of "Yaah," "Drop dead," and "You're another."

While they were still snarling at each other, Lavon pierced the nearest one all the way through with an arablast bolt. It disintegrated promptly — rotifers are delicately organized creatures

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despite their ferocity—and the remaining two were at once involved in a lethal battle over the remains.

"Than, take a party out and spear me those two Eaters while they're still fighting," Lavon ordered. "Don't forget to destroy their eggs, too. I can see that this world needs a little taming."

The girl shot through the port and brought up against the far wall of the cabin, flailing in terror. Lavon tried to approach her, but from somewhere she produced a flake of stonewort chipped to a nasty point. He sat down on the stool before his control board and waited while she took in the cabin, Lavon, Shar, the pilot, the senescent Para.

At last she said: "Are—you—the gods from beyond the sky?"

"We're from beyond the sky, all right," Lavon said. "But we're not gods. We're human beings, like yourself. Are there many humans here?"

The girl seemed to assess the situation very rapidly, savage though she was. Lavon had the odd and impossible impression that he should recognize her. She tucked the knife back into her matted hair—ah, Lavon thought, that's a trick I may need to remember—and shook her head.

"We are few. The Eaters are everywhere. Soon they will have the last of us."

Her fatalism was so complete that she actually did not seem to care.

"And you've never cooperated against them? Or asked the protos to help?"

"The protos?" She shrugged. "They are as helpless as we are against the Eaters. We have no weapons which kill at a distance, like yours. And it is too late now for such weapons to do any good. We are too few, the Eaters too many."

LAVON shook his head emphatically. "You've had one weapon that counts, all along. Against it, numbers mean nothing. We'll show you how we've used it. You may be able to use it even better than we did, once you've given it a try."

The girl shrugged again. "We have dreamed of such a weapon now and then, but never found it. I do not think that what you say is true. What is this weapon?"

"Brains," Lavon said. "Not just one brain, but brains. Working together. Cooperation."

"Lavon speaks the truth," a weak voice said from the deck.

The Para stirred feebly. The girl watched it with wide eyes. The sound of the Para using human speech seemed to impress her more than the ship or anything else it contained.

"The Eaters can be conquered,"

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the thin, buzzing voice said. "The protos will help, as they helped in the world from which we came. They fought this flight through space, and deprived Man of his records; but Man made the trip without the records. The protos will never oppose men again. I have already spoken to the protos of this world and have told them what Man can dream, Man can do, whether the protos wish it or not.

"SHAR, your metal records are with you. They were hidden in the ship. My brothers will lead you to them.

"This organism dies now. It dies in confidence of knowledge, as an intelligent creature dies. Man has taught us this. There is nothing that knowledge . . . cannot do. With it, men . . . have crossed . . . have crossed space . . ."

The voice whispered away. The shining slipper did not change, but something about it was gone. Lavon looked at the girl; their eyes met.

"We have crossed space," Lavon repeated softly.

Shar's voice came to him across a great distance. The young-old man was whispering: "But *have* we?"

"As far as I'm concerned, yes," said Lavon.

—JAMES BLISH

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proof of the pudding

By ROBERT SHECKLEY

One man's fact is fantasy for another—except the man whose fantasies become solid facts!

HIS arms were very tired, but he lifted the chisel and mallet again. He was almost through; only a few more letters and the inscription, cut deeply into the tough granite, would be finished. He rounded out the last period and straightened up, dropping his tools carelessly to the floor of the cave. Proudly he wiped the perspiration from his dirty stubbled

Illustrated by WILLER

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face and read what he had written.

I ROSE FROM THE SLIME OF THE PLANET. NAKED AND DEFENSELESS, I FASHIONED TOOLS. I BUILT AND DEMOLISHED, CREATED AND DESTROYED. I CREATED A THING GREATER THAN MYSELF THAT DESTROYED ME.

MY NAME IS MAN AND THIS IS MY LAST WORK.

He smiled. What he had written was good. Not literary enough, perhaps, but a fitting tribute to the human race, written by the last man. He glanced at the tools at his feet. Having no further use for them, he dissolved them, and, hungry from his long work, squatted in the rubble of the cave and created a dinner. He stared at the food for a moment, wondering what was lacking; then, sheepishly, created a table and chair, utensils and plates. He was embarrassed. He had forgotten them again.

Although there was no need to rush, he ate hurriedly, noting the odd fact that when he didn't think of anything specific, he always created hamburger, mashed potatoes, peas, bread and ice cream. Habit, he decided. Finished, he made the remnants of the meal disappear, and with them the plates, utensils and table. The chair he retained. Sitting on it, he stared thoughtfully at the inscription. *It's fine,* he thought, *but no human other than myself will ever read it.*

It was fairly certain that he was the last man alive on the Earth. The war had been thorough. Thorough as only man, a meticulous animal, could make it. There had been no neutrals in this war, no middle-of-the-road policy. You were on one side or the other. Bacteria, gas and radiations had covered the Earth like a vast cloud. In the first days of that war, invincible secret weapon had succeeded secret weapon with almost monotonous regularity. And after the last hand had pushed the last button, the bombs, automatically guided and impelled, had continued to rain down. The unhappy Earth was a huge junkyard, without a living thing, plant or animal, from pole to pole.

He had watched a good part of it. He had waited until he was fairly sure the last bomb had been dropped; then he had come down.

Very clever of you, he thought bitterly, looking out the mouth of the cave at the lava plain his ship rested on, and at the twisted mountains behind it.

You're a traitor — but who cares?

He had been a captain in the Western Hemisphere Defense.

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Within two days of warfare, he had known what the end would be. Filling a cruiser with canned air, food and water, he had fled. In the confusion and destruction, he knew that he would never be missed; after a few days there was no one left to miss him. He had raced the big ship to the dark side of the Moon, and waited. It was a twelve-day war—he had guessed it would last fourteen—but he had to wait nearly six months before the automatic missiles stopped falling. Then he had come down.

To find himself the only survivor . . .

HE had expected others to recognize the futility of it, load ships and flock to the dark side of the Moon also. Evidently there had been no time, even if there had been the desire. He had thought that there would be scattered groups of survivors, but he hadn't found any. The war had been too thorough.

Landing on the Earth should have killed him, for the air itself was poisoned. He hadn't cared—and he had lived. He seemed to be immune to the various kinds of germs and radiations, or perhaps that was part of his new power. He certainly had encountered enough of both, skipping around the world in his ship, from the ruins of one city to another, across blasted valleys and plains, scorched mountains. He had found no life, but he did discover something.

He could create. He realized the power on his third day on Earth. Wistfully, he had wished for a tree in the midst of the melted rock and metal; a tree had appeared. The rest of the day he experimented, and found that he could create anything that he had ever seen or heard about.

Things he knew best, he could create best. Things he knew just from books or conversation — palaces, for example — tended to be lopsided and uncertain, although he could make them nearly perfect by laboring mentally over the details. Everything he created was three-dimensional. Even food tasted like food and seemed to nourish him. He could forget all about one of his creations, go to sleep, and it would still be there when he awakened. He could also uncreate. A single concentrated thought and the thing he had made would vanish. The larger the thing, the longer it took to uncreate.

Things he *hadn't* made — valleys and mountains — he could uncreate, too, but it took longer. It seemed as though matter was easier to handle once he had shaped it. He could make birds and small animals, or things that

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looked like birds and small animals.

He had never tried to make a human being.

He wasn't a scientist; he had been a space-pilot. He had a vague concept of atomic theory and practically no idea of genetics. He thought that some change must have taken place in his germ-plasm, or in his brain, or perhaps in the Earth. The "why" of it all didn't especially bother him. It was a fact and he accepted it.

He stared at the monument again. Something about it bothered him.

Of course, he could have created it, but he didn't know if the things he made would endure after his death. They seemed stable enough, but they might dissolve with his own dissolution. Therefore he compromised. He created a chisel and mallet, but selected a granite wall that he hadn't made. He cut the letters into the inside of the wall of the cave so they would be safe from the elements, working many hours at a stretch, sleeping and eating beside the wall.

From the mouth of the cave, he could see his ship, perched on a level plain of scorched ground. He was in no rush to get back to it. In six days the inscription was done, cut deeply and eternally into the rock.

The thought that had been bothering him as he stared at the gray granite finally came to the surface. The only people who would come to read it would be visitors from the stars. How would they decipher it? He stared at the inscription angrily. He should have written it in symbols. But what kind of symbols? Mathematics? Of course, but what would that tell them about Man? And what made him think *they* would discover the cave anyway? There was no use for an inscription when Man's entire history was written over the face of the planet, scorched into the crust for anyone to see. He cursed his stupidity for wasting six days working at the useless inscription. He was about to uncreate it when he turned his head, hearing footsteps at the mouth of the cave.

He almost fell off the chair getting to his feet.

A GIRL was standing there. He blinked rapidly, and she was still there, a tall, dark-haired girl dressed in a torn, dirty one-piece coverall.

"Hi," she said, and walked into the cave. "I heard your hammer from the valley."

Automatically, he offered her his chair and created another for himself. She tested it gingerly before she sat down.

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"I saw you do it," she said, "but I still don't believe it. Mirrors?"

"No," he muttered uncertainly. "I create. That is, I have the power to—wait a minute! How did you get here?" While he was demanding to know, he was considering and rejecting possibilities. Hidden in a cave? On a mountain top? No, there would be only one possible way . . .

"I was in your ship, pal." She leaned back in the chair and clasped her hands around one knee. "When you loaded up that cruiser, I figured you were going to beat it. I was getting tired of setting fuses eighteen hours a day, so I stowed away. Anybody else alive?"

"No. Why didn't I see you, then?" He stared at the ragged, beautiful girl, and a vague thought crossed his mind. He reached out and touched her arm. She didn't draw back, but her pretty face grew annoyed.

"I'm real," she said bluntly. "You must have seen me at the base. Remember?"

He tried to think back to the time when there had been a base—centuries ago, it seemed. There *had* been a dark-haired girl there, one who had never given him a tumble.

"I think I froze to death," she was saying. "Or into coma, anyhow, a few hours after your ship took off. Lousy heating system you have in that crate!" She shivered reminiscently.

"Would have used up too much oxygen," he explained. "Just kept the pilot's compartment heated and aired. Used a suit to drag supplies forward when I needed them."

"I'm glad you didn't see me," she laughed. "I must have looked like the devil, all covered with frost and killed, I bet. Some sleeping beauty I probably made! Well, I froze. When you opened all the compartments, I revived. That's the whole story. Guess it took a few days. How come you didn't see me?"

"I suppose I never looked back there," he admitted. "Quick enough, I found I didn't need supplies. Funny, I thought I opened all the compartments, but I don't really remember—"

She looked at the inscription on the wall. "What's that?"

"I thought I'd leave a sort of monument—"

"Who's going to read it?" she asked practically.

"No one, probably. It was just a foolish idea." He concentrated on it. In a few moments the granite wall was bare. "I still don't understand how you could be alive now," he said puzzled.

"But I am. I don't see how you do that—" she gestured at the chair and wall—"But I'll accept

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the fact that you can. Why don't you accept the fact that I'm alive?"

"Don't get me wrong," the man said. "I want company very much, especially female company. It's just—Turn your back."

She complied, with a questioning look. Quickly he destroyed the stubble on his face and created a clean pair of pressed pants and a shirt. Stepping out of his tattered uniform, he put on the new clothes, destroyed the rags, and, on an afterthought, created a comb and straightened his tangled brown hair.

"All right," he said. "You can turn back now."

"Not bad," she smiled, looking him over. "Let me use that comb—and would you please make me a dress? Size twelve, but see that the weight goes in the right places."

ON the third attempt he had the thing right—he had never realized how deceptive the shapes of women could be— and then he made a pair of gold sandals with high heels for her.

"A little tight," she said, putting them on, "and not too practical without sidewalks. But thanks much. This trick of yours really solves the Christmas present problem, doesn't it?" Her dark hair was shiny in the noon Sun, and she looked very lovely and warm and human.

"See if *you* can create," he urged, anxious to share his startling new ability with her.

"I've already tried," she said. "No go. Still a man's world."

He frowned. "How can I be absolutely sure you're real?"

"That again? Do you remember creating me, Master?" she asked mockingly, bending to loosen the strap on one shoe.

"I had been thinking—about women," he said grimly. "I might have created you while I was asleep. Why shouldn't my subconscious mind have as much power as my conscious mind? I would have equipped you with a memory, given you a background. You would have been extremely plausible. And if my subconscious mind *did* create you, then it would make certain that my conscious mind would never know."

"You're ridiculous!"

"Because if my conscious mind knew," he went on relentlessly, "it would reject your existence. Your entire function, as a creation of my subconscious, would be to keep me from knowing. To prove, by any means in your power, by any logic, that you were—"

"Let's see you make a woman, then, if your mind is so good!" She crossed her arms and leaned back in the chair, giving a single

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sharp nod.

"All right." He stared at the cave wall and a woman started to appear. It took shape sloppily, one arm too short, legs too long. Concentrating harder, he was able to make its proportions fairly true. But its eyes were set at an odd angle; its shoulders and back were sloped and twisted. He had created a shell without brains or internal organs, an automaton. He commanded it to speak, but only gulps came from the shapeless mouth; he hadn't given it any vocal apparatus. Shuddering, he destroyed the nightmare figure.

"I'm not a sculptor," he said. "Nor am I God."

"I'm glad you finally realize that."

"That still doesn't prove," he continued stubbornly, "that *you're* real. I don't know what my subconscious mind is capable of."

"Make something for me," she said abruptly. "I'm tired of listening to this nonsense."

I've hurt her feelings, he thought. *The only other human on Earth and I've hurt her.* He nodded, took her by the hand and led her out of the cave. On the flat plain below he created a city. He had experimented with it a few days back, and it was much easier this time. Patterned after pictures and childhood dreams of the Thousand and One Nights, it towered black and white and rose. The walls were gleaming ruby, and the gates were of silver-stained ebony. The towers were red gold, and sapphires glittered in them. A great staircase of milky ivory climbed to the highest opal spire, set with thousands of steps of veined marble. There were lagoons of blue water, and little birds fluttered above them, and silver and gold fish darted through the still depths.

They walked through the city, and he created roses for her,

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white and yellow and red, and gardens of strange blossoms. Between two domed and spired buildings he created a vast pool of water; on it he put a purple-canopied pleasure barge, loading it with every kind of food and drink he could remember.

THEY floated across the lagoon, fanned by the soft breeze he had created.

"And all this is false," he reminded her after a little while.

She smiled. "No it's not. You can touch it. It's real."

"Will it be here after I die?"

"Who cares? Besides, if you can do all this, you can cure any sickness. Perhaps you can even cure old age and death." She plucked a blossom from an overhanging bough and sniffed its fragrance. "You could keep this from fading and dying. You could probably do the same for us, so where's the problem?"

"Would you like to go away?" he said, puffing on a newly created cigarette. "Would you like to find a new planet, untouched by war? Would you like to start over?"

"Start over? You mean . . . Later perhaps. Now I don't even want to go near the ship. It reminds me of the war."

They floated on a little way.

"Are you sure now that I'm real?" she asked.

"If you want me to be honest, no," he replied. "But I want very much to believe it."

"Then listen to me," she said, leaning toward him. "I'm real." She slipped her arms around his neck. "I've always been real. I always will be real. You want proof? Well, I know I'm real. So do you. What more can you ask?"

He stared at her for a long moment, felt her warm arms around his neck, listened to her breathing. He could smell the fragrance of her skin and hair, the unique essence of an individual.

Slowly he said, "I believe you. I love you. What—what is your name?"

She thought for a moment. "Joan."

"Strange," he said. "I always dreamed of a girl named Joan. What's your last name?"

She kissed him.

Overhead, the swallows he had created—*his* swallows—wheeled in wide circles above the lagoon, his fish darted aimlessly to and fro, and his city stretched, proud and beautiful, to the edge of the twisted lava mountains.

"You didn't tell me your last name," he said.

"Oh, that. A girl's maiden name never matters—she always takes her husband's."

"That's an evasion!"

She smiled. "It is, isn't it?"

—ROBERT SHECKLEY

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For Your Information

By WILLY LEY

The Supersonic Bot Fly

THERE are some stories that seem impossible to kill off. One of them is the famous statement to be found, colored and framed, on the walls of practically every airplane manufacturer's office, namely that the bumblebee cannot fly. But since the bumblebee cannot

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read, either, it is unaware of that fact and goes on flying.

THIS story originated in the 1930s with the thesis of a German student. It bore a title something like (I'm quoting from memory) *Aerodynamic Forces on small, plane, vibrating surfaces of the Order of Magnitude on Insect's Wings*. All the thesis intended to prove was that it would not work if the small vibrating surfaces were rigid planes. There are some additional complications in the development of that legend—including some mere typographical errors in several of the equations—but I don't want to go into that now, because the misinterpretation should be clear enough, and I'm more concerned with that other story; the supersonic bot fly.

LET'S nail this at the outset with name, place and sex. The speed champion of this planet is allegedly the male of the deer bot fly *Cephenomyia pratti* which occurs in the valleys of the Sierra Madre. The first man to report the incredible feats of *Cephenomyia* was Dr. Charles H. T. Townsend, who wrote in the *Journal of the N. Y. Entomological Society* (1937):

> Regarding the speeds of *Cephenomyia*, the idea of a fly overtaking a bullet is a painful mental pill to swallow . . . yet these flies can probably do that to an old-fashioned musket ball. They could probably have kept up with the shells that the German Big Bertha shot into Paris during World War I. The males are faster than the females . . . at 7000-foot levels in the Sierra Madre valleys of western Chihauhua I have seen the gravid females pass . . . at a velocity of well over 300 yards a second . . . on 12,000-foot summits in New Mexico I have seen pass me at an incredible velocity what were quite certainly the males of *Cephenomyia*. I could barely distinguish that something had passed—only a brownish blur in the air of about the right size for these flies and without sense of form. As closely as I can estimate, their speed must have approximated 400 yards per second.

Of course, this was interesting, to put it mildly. Apparently Dr. Roy Chapman Andrews, then the director of the American Museum of Natural History, inquired about detail, for he received this letter from Dr. Townsend.

> They are no sooner detected as a passing streak than they are entirely out of sight on a straightaway course. They pass at a speed that is next to invisible—like a flash of light almost—not over half a second—just a blurred streak in the air but never visible and giving no sense of color. The time was checked repeatedly with the shutter of a camera. The data are practically accurate and as close as will ever be possible to measure.

Roy Chapman Andrews quoted this excerpt in *Natural History Magazine* (Oct. 1937), adding that he'd feel more comfortable if it were possible to test this in a wind tunnel.

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THAT the story made such a splash and is still reverberating in some popular books can only be due to the fact that people don't read critically what they see in print. For, as a scientific report, Dr. Townsend's article is less than ideal. He "could barely distinguish that something had passed," yet he knows that what had passed were "quite certainly the males of *Cephenomyia*." In the entomological journal, it was "a brownish blur;" in the letter to Dr. Andrews, the blurred streak gave no sense of color. The timing device was a camera shutter, which isn't reliable for small fractions of a second immediately after an overhaul, yet "the data are practically accurate."

All of his comparisons were put into print without any checking whatever. Estimated speed of the brownish (or colorless) blurs was 400 yards per second, or 1200 feet per second, at an elevation above sea level of 12,000 feet. (Speed of sound at that altitude is 1070 feet per second.) At that speed the fly can "probably" overtake a musket ball. Now I don't know whether the muzzle velocity of an old musket has actually been measured, but the muzzle velocity of an old-fashioned six-shooter is 450 feet per second. A .45 cal. slug is hardly smaller than *Cephenomyia;* as a rule, people don't see them. It would be a most interesting experiment to time the bullets from .45 cal. gats with a camera shutter!

On the other hand, the muzzle velocity of the German Paris Gun of 1918 with which the flies "could probably have kept up" was around 5300 feet per second, or about 4½ times the alleged maximum speed of the fabulous bot fly males.

It so happened that I saw galley proofs of Roy Chapman Andrews's article before it was published. My next action was to get myself a picture of such a bot fly and its dimensions, and then invite an aerodynamicist for beer with discussion. We did not ask such irrelevant questions as the acceleration period required to get up to 400 yards per second or 818 miles per hour. We simply assumed that the fly did travel at such speed and calculated its air resistance. In round figures, it was 80 grams, a little short of three ounces. Now it needs power to maintain speed against that much drag. The calculation was simple and ended up with the figure of 0.45 horsepower! These calculations were made as if the thing were an airplane model the size of a bot fly. Then we repeated the calculations for the same size bullet. Same results.

A year later, Dr. Irving Lang-

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muir of General Electric published an article in *Science* (vol. 87, No. 2254, March 11, 1938), with results even more devastating. Wind pressure against the head of the fly at 818 mph turned out to be eight lbs. per square inch, which should be enough to crush it. Power to maintain speed against such wind pressure: 370 watts or about ½ horsepower, requiring a food intake of 0.31 grams *per second*, which is roughly 1½ times the weight of the insect.

SUCH statistics disposed of Dr. Townsend's supersonic speeds neatly and simply.

Then Dr. Langmuir tried to establish how fast they *do* fly. He took a piece of solder of the right size and spun it on a thin silk thread, timing it with a telechron clock, and using the brightly illuminated white ceiling of the laboratory as a background.

When the solder fly moved at 13 mph, its shape could no longer be seen, but its size could be estimated correctly. At 26 mph, it was just visible as a moving object. At 43 mph, it appeared as a faint line (direction of movement could no longer be seen) and at 64 mph it was simply invisible.

The conclusion was that the speed of 26 mph best agreed with Dr. Townsend's description. Power requirement for 25 mph would be 0.0034 watts, corresponding to a food intake of five per cent of the body weight per hour.

However, Dr. Langmuir went back to the 818 mph speed originally alleged. The flies had always missed Dr. Townsend, but obviously their maneuverability at supersonic speed cannot be too accurate. Now if one had hit—well, there would have been an impact force of 140 kilograms or 310 pounds. Penetration would depend largely on where it happened to hit, but a blow in the eye or even on the chest would be likely to be fatal.

It is just barely possible that

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the inhabitants of the Sierra Madre are in a dark conspiracy to bury their victims of such accidents without informing the sheriff or Dr. Townsend, thereby eliminating all traces of *Cephenomyia's* deadliness. I rather doubt it.

Legs and Wings

WHY do insects have six legs, but less than six wings? At first glance this may look like an exceedingly idle question, yet it can be answered and the answer involves both evolutionary history and engineering principles. I admit that a bookkeeper and a general can do their jobs without this information, but when it comes to science fiction authors and readers, such a discussion may prove helpful.

Let's begin at the beginning, with the ancestors of the insects. They were creatures which anybody but a professional zoologist would take to be centipedes. There were quite a number of legs to begin with, thirty pairs or more. In the course of insect evolution, this number was uniformly reduced to three pairs. Apparently everything beyond that number constituted dead weight. But why did the insects stop the reduction at that point? Why didn't they go below that? (Only some parasitic insects have less than three pairs of legs —none at all.)

The answer has been pointed out by Prof. U. N. Lanham of the University of Michigan. When an insect walks, it lifts the front and hind legs on one side and the middle leg on the other. This forms a tripod, something an engineer recognizes at once as a stable support. Then the other set becomes a tripod. Anything less than a tripod would be unstable and require a balancing act.

Reptiles and mammals do this beautifully all the time, but insects can't follow their example for two reasons. One is that they are encased in armor and too stiff. Reptiles and mammals can shift their flexible bodies subtly for balance and many of them also have a tail to help. The other reason is that insects are too small; if they should fall, they do so too fast for a correction to be made. Try balancing first a pencil and then a broomstick on your finger and you'll find out what size has to do with balance.

It is interesting in this connection to note that the praying mantis, which habitually walks on four legs (although it has six), is rather large and unusually flexible. And in climbing, the front pair, which has evolved into a set of insect traps, usually has

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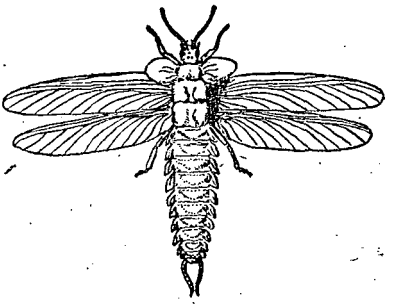
to help out.

But how about the wings?

The multiple pairs of legs of the insect ancestors were *not* accompanied by a corresponding number of appendages which could become wings. Insects did not try to sprout wings until after the number of their legs had been reduced to three pairs. But the first winged insects apparently had three pairs of wings, too. In the oldest example we know (see illustration) the first pair is already considerably reduced, but it is still there. Our contemporary insects either have the original second and third pair left—for example, dragonflies and butterflies—or the original middle pair. There is just one small and unimportant group, also tiny in size, which retained the original third pair, the *Strepsiptera*.

If the picture of *Stenodictya* reminds you of early designs of "flying machines" with lots of wings, you are right and you also know the reason. You can have a pair of wings which serve more or less in the fashion of the rotor of a helicopter. Or you can have one pair which serves as wings, airplane-style, with another pair serving as propellers (beetles do just about that). But anything beyond that causes interference, ruins the aerodynamics of the design and grounds the experimenter.



So if you invent some interesting insect forms for the planet Bombastus, see to it that they have more than four legs. And avoid flying centipedes with 60 legs and 48 wings.

The Diameter of Pluto

PLUTO, as you know, is the outermost of the known planets of our solar system, discovered in 1930. But ever since its discovery, Pluto has managed to pose riddles. At the time when it was still listed as "suspected to exist," astronomers who had given the matter some thought would have expected it to be a rather large planet—about the size of Neptune, which has a diameter of 31,000 miles—and they would have expected it to be rather far out. The average distance of Neptune is 2,800 million miles, so the next planet outside of Neptune should have been around 4,000 million miles.

But Pluto proved to be much

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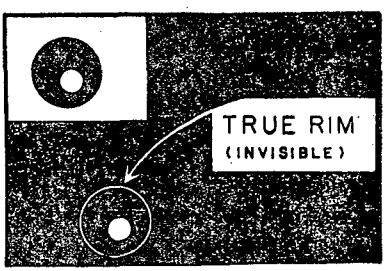
closer than expected, with part of its orbit *inside* the orbit of Neptune, thus having a much more eccentric path than any other planet, even worse than Mercury. And it was found to be much smaller than expected. It seemed to have about the same size as Earth and the diameter guessed at was put down at 7,700 miles, with a question mark attached. Since its gravitational influence appears to be about that of Earth, this would have led to about the same density, which in the case of Earth is 5.5 times that of water.

Then, in 1950, twenty years after its original discovery, Dr. Gerard P. Kuiper succeeded in actually measuring its diameter with the aid of the 200-inch telescope on Palomar Mountain. The apparent diameter turned out to be 0.22 seconds of arc, which, for the known distance, gave a "real" diameter of 3,550 miles, the same as that of Saturn's largest moon, Titan.

The joy over this accomplishment, however, practically vanished when one started to calculate a little. The gravitational influence was still about that of Earth, but with such a small diameter, the average density of Pluto would have to be about 55!

There is no element with such a density. Iron has a density of 7.8, uranium 18.7, gold 19.3, platinum 21.4 and osmium 22.5. Astrophysicists know that the crushed matter of stellar cores must be denser by far than 55, but Pluto is not heavy enough to crush matter.

Something had to be wrong and the latest guess at what it might be is that our measurement of Pluto suffers from "specular reflection." The term is derived from the Latin *speculum* for "mirror" and simply means that a sufficiently smooth planet might reflect light in the manner of a polished ball.



The diagram shows what would happen in such a case. If such a (more or less) polished ball could be seen against a light background (insert), it could still be measured accurately. Pluto is seen against a black background, though, and in that case we would measure not the planet, but the reflection.

This suggestion, first offered by Sir James Jeans, would resolve that impossible density of 55 for a rather small planet. But it does

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nothing to answer what we really want to know—the true diameter of Pluto.

Science fiction authors would probably be more interested in the seeming smoothness of the planet's surface. Ice or frozen gases might explain it, for Pluto is an extremely frigid world. But we won't know, of course, until we get there and see for ourselves.

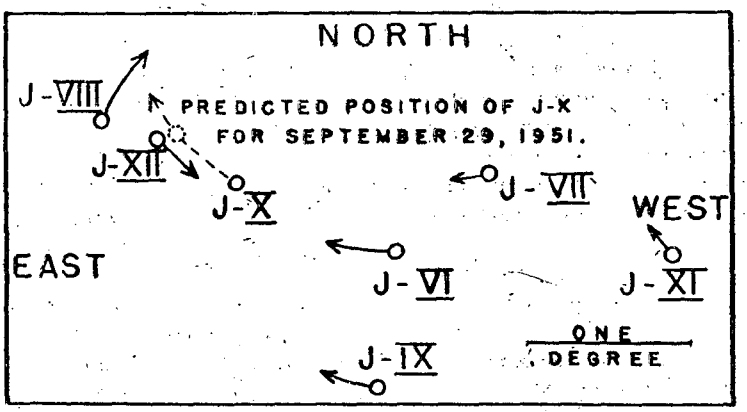
More on Moons

THE date of September 29, 1951, marks the discovery of the twelfth satellite of Jupiter, or J-XII. The discovery was made photographically with the 100-inch telescope on Mt. Wilson and the discoverer was Dr. Seth B. Nicholson, who is the only living man to have discovered four satellites of Jupiter—J-IX, J-X, J-XI and now J-XII.

But there was quite some confusion connected with that discovery: Dr. Nicholson, naturally, did not take his plates for the purpose of looking for another satellite of Jupiter. He wanted to check the movement of the faint Jovian satellites, specifically his own earlier discoveries.

To understand what follows, look at the diagram (adapted from a *Mount Wilson and Palomar Observatories* diagram) which shows how the sky near Jupitor would have looked that night to a sensitive instrument of a sufficiently wide angle.

J-IX and J-XI were easily accounted for. So were J-VI and



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J-VII, which are much brighter and could not be mistaken for any of the high-numbered satellites. And on a plate far to the east there was J-X, right in the position for which it had been predicted for September 29. But to the west of J-X, there was a new faint body. Most likely it was another Jovian satellite and, since they are numbered in the order of discovery, it was clearly J-XII.

Then followed a frantic series of HACs (Harvard Announcement Cards), the first giving the position of the "western object." Some two weeks later, there came another, stating that Dr. P. Musen of Cincinnati Observatory had identified the object as J-X. Doctor Musen realized that the prediction for J-X had been mistaken; J-X was in its orbit, all right, but had not yet reached the position predicted for September 29. (In fact, it did not get there until 20 days later.) Hence Dr. Nicholson's "western object" was merely J-X, three weeks behind schedule.

The next HAC told that story and pointed out that the object in the place where J-X should have been must be a new satellite.

A week later, there came another HAC, giving more precise positions and warning that Minor Planet No. 1003—Lilofee—was also nearby.

Meanwhile, Dr. Nicholson had found that his new object, suspected to be J-XII and originally taken to be J-X, was traveling relative to Jupiter in the opposite direction of J-X's well-established movement.

By the end of November, it was all straightened out. J-XII is a member of the outer group of Jovian satellites; it is retrograde and some 14 to 15 million miles from Jupiter. Its orbital period must be more than 600 and might be closer to 700 days. And since it could be mistaken for J-X, it has about the same brightness, which indicates that its diameter must be about the same, less than 20 miles.

If J-X had not been predicted wrong, J-XII might have been overlooked.

I wonder how J-XIII will be discovered.

—WILLY LEY

ANY QUESTIONS?

How can a rocketship turn in space?

Robert Stewart
330 West Monroe St.
Greenwood, Mass.

There are three methods for turning a rocketship in space. The simplest is a short blast from the rocket motor with full deflection on the steering vanes

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which are in the exhaust blast. These steering vanes are typical for the V-2's steering system. The second method is to have the whole rocket motor swivel mounted and to blast with tilted motor. This is typical for the Navy's Viking rocket.

A third method, not yet actually used, would be to have a wheel spin inside the rocket, while no propulsion is applied. If you have a wheel spinning in one direction, the rocket will have to turn in the opposite direction. If you have three wheels mounted at right angles to each other inside, the rocketship can be turned into any direction by spinning the appropriate wheels.

Of course, turning by spinning wheels does not change direction of flight, but merely the direction in which the nose is pointing. To move in that new direction, you need rocket motors.

Which subjects should I study for later work in rockets and in astronautics?

Neil Stutz
85-48, 212th Street
Queens Village, N. Y.

This question, which comes to me in my mail at least once a week, is hard to answer generally, for much depends on what the student intends to do later. Theoretical astronautics is the child of astronomy and theoretical physics. A man who wants to contribute to space travel theory and solve some of its problems (which are distinct from strict engineering problems) would be essentially a theoretical physicist with a thorough grounding in astronomy, especially "astronomy of position," that branch dealing with the movements of bodies in space.

As for rocket engineering, there are now three major branches. One group of "rocket engineers" specializes in telemetering and guidance systems; these are originally electronics engineers. Another group specializes in the building of the rocket proper; these are essentially aeronautical engineers. The third group, the "rocket engineers" proper, are the men who design, build and test rocket motors; they are specialized mechanical engineers.

In short, if you want to work in rocket engineering, you have to be an engineer first, because rocket work is a specialization of various branches of engineering. Of course chemists, metallurgists and medical men have also contributed to astronautics. Again, however, they were chemists, metallurgists

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and doctors before they specialized.

A number of colleges and engineering colleges give special courses. I know that there are such courses at the University of California (Los Angeles), at California Institute of Technology, at Ohio State University, at Massachusetts Institute of Technology and at Princeton University. There are probably still others of which I haven't heard yet.

An analogy is often drawn between the atom and the Solar System, wherein the Sun represents the nucleus. But now the nucleus is known to be a multiplicity of parts, and electrons are unknown to possess satellites. Therefore: to what phenomenon of the astronomer can the atoms of the physicist be made analogous?

Royall T. Moore
C325 Hillcrest
Iowa City, Iowa

None. That analogy dates back to the days when nothing was known about the atom except that it had to have a nucleus and something around the nucleus. To draw such an analogy nowadays makes even less sense than the assertion that Mr. X resembles an elephant because both have one head, four limbs, two eyes in the head, one mouth with teeth and a stomach that demands food. Such an analogy completely disregards all dissimilarities for the sake of a few similarities.

In a solar system, you have one planet per orbit, all orbits in about the same plane and all planets of different sizes. In an atom, you have several electrons per orbit, all of the same size and (except in the case of the hydrogen and the helium atoms) more than one orbital plane.

Send your science questions to Willy Ley c/o GALAXY. He'll answer them all by mail or in this department. Keep them short, a few at a time, and print or type them, please!

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yesterday house

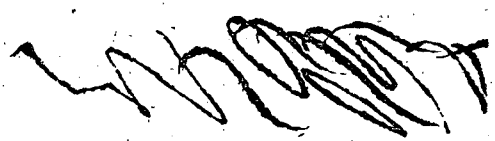
Meeting someone who's been dead for twenty years is shocking enough for anyone with a belief in ghosts—worse for one with none!

Illustrated by ASHMAN

I

THE narrow cove was quiet as the face of an expectant child, yet so near the ruffled Atlantic that the last push of wind carried the *Annie O.* its full length. The man in gray flannels and sweatshirt let the sail come crumpling down and hurried past its white folds at a gait made comically awkward by his cramped muscles. Slowly the rocky ledge came nearer. Slowly the blue V inscribed on the cove's surface by the sloop's prow died. Sloop and ledge kissed so gently that he hardly had to reach out his hand.

He scrambled ashore, dipping a sneaker in the icy water, and threw the line around a boulder. Unkinking himself, he looked back through the cove's high and rocky mouth at the gray-green



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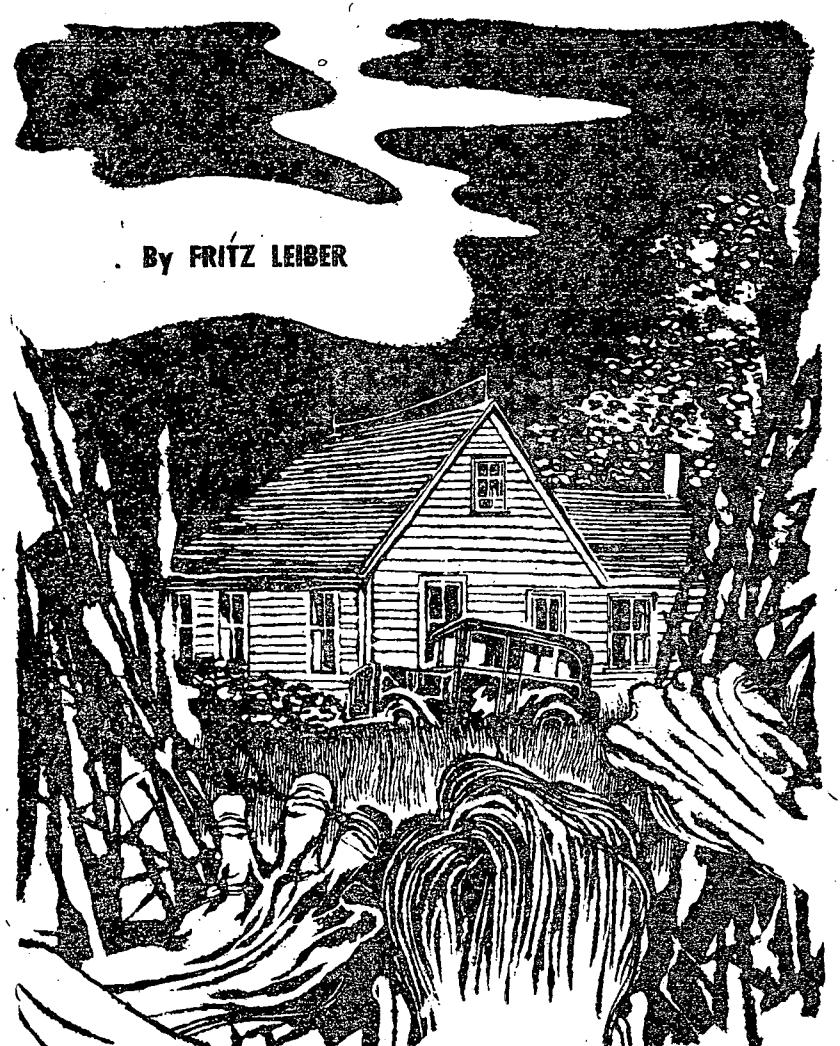
By FRITZ LEIBER



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scattering of islands and the faint dark line that was the coast of Maine. He almost laughed in satisfaction at having disregarded vague warnings and done the thing every man yearns to do once in his lifetime—gone to the farthest island out.

He must have looked longer than he realized, because by the time he dropped his gaze the cove was again as glassy as if the *Annie O.* had always been there. And the splotches made by his sneaker on the rock had faded in the hot Sun. There was something very unusual about the quietness of this place. As if time, elsewhere hurrying frantically, paused here to rest. As if all changes were erased on this one bit of Earth.

The man's lean, melancholy face crinkled into a grin at the banal fancy. He turned his back on his new friend, the little green sloop, without one thought for his nets and specimen bottles, and set out to explore. The ground rose steeply at first and the oaks were close, but after a little way things went downhill and the leaves thinned and he came out on more rocks—and realized that he hadn't quite gone to the farthest one out.

JOINED to this island by a rocky spine, which at the present low tide would have been dry but for the spray, was another green, high island that the first had masked from him all the while he had been sailing. He felt a thrill of discovery, just as he'd wondered back in the woods whether his might not be the first human feet to kick through the underbrush. After all, there were thousands of these islands.

Then he was dropping down the rocks, his lanky limbs now moving smoothly enough.

To the landward side of the spine, the water was fairly still. It even began with another deep cove, in which he glimpsed the spiny spheres of sea urchins. But from seaward the waves chopped in, sprinkling his trousers to the knees and making him wince pleasurably at the thought of what vast wings of spray and towers of solid water must crash up from here in a storm.

He crossed the rocks at a trot, ran up a short grassy slope, raced through a fringe of trees—and came straight up against an eight-foot fence of heavy mesh topped with barbed wire and backed at a short distance with high, heavy shrubbery.

Without pausing for surprise—in fact, in his holiday mood, using surprise as a goad—he jumped for the branch of an oak whose trunk touched the fence, scorning the easier lower branch on the other side of the tree. Then he

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drew himself up, worked his way to some higher branches that crossed the fence, and dropped down inside.

Suddenly cautious, he gently parted the shrubbery and, before the first surprise could really sink in, had another.

A closely mown lawn dotted with more shrubbery ran up to a snug white Cape Cod cottage. The single strand of a radio aerial stretched the length of the roof. Parked on a neat gravel driveway that crossed just in front of the cottage was a short, square-lined touring car that he recognized from remembered pictures as an ancient Essex. The whole scene had about it the same odd quietness as the cove.

Then, with the air of a clockwork toy coming to life, the white door opened and an elderly woman came out, dressed in a long, lace-edged dress and wide, lacy hat. She climbed into the driver's seat of the Essex, sitting there very stiff and tall. The motor began to chug bravely, gravel skittered, and the car rolled off between the trees.

The door of the house opened again and a slim girl emerged. She wore a white silk dress that fell straight from square neckline to hip-height waistline, making the skirt seem very short. Her dark hair was bound with a white bandeau so that it curved close to her cheeks. A dark necklace dangled against the white of the dress. A newspaper was tucked under her arm.

She crossed the driveway and tossed the paper down on a rattan table between three rattan chairs and stood watching a squirrel zigzag across the lawn.

THE man stepped through the wall of shrubbery, called, "hello!" and walked toward her.

She whirled around and stared at him as still as if her heart had stopped beating. Then she darted behind the table and waited for him there. Granting the surprise of his appearance, her alarm seemed not so much excessive as eerie. As if, the man thought, he were not an ordinary stranger, but a visitor from another planet.

Approaching closer, he saw that she was trembling and that her breath was coming in rapid, irregular gasps. Yet the slim, sweet, patrician face that stared into his had an underlying expression of expectancy that reminded him of the cove. She couldn't have been more than eighteen.

He stopped short of the table. Before he could speak, she stammered out, "Are you he?"

"What do you mean?" he asked, smiling puzzledly.

"The one who sends me the little boxes."

"I was out sailing and I hap-

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pened to land in the far cove. I didn't dream that anyone lived on this island, or even came here."

"No one ever does come here," she replied. Her manner had changed, becoming at once more wary and less agitated, though still eerily curious.

"It startled me tremendously to find this place," he blundered on. "Especially the road and the car. Why, this island can't be more than a quarter of a mile wide."

"The road goes down to the wharf," she explained, "and up to the top of the island, where my aunts have a tree-house."

He tore his mind away from the picture of a woman dressed like Queen Mary clambering up a tree. "Was that your aunt I saw driving off?"

"One of them. The other's taken the motorboat in for supplies." She looked at him doubtfully. "I'm not sure they'll like it if they find someone here."

"There are just the three of you?" he cut in quickly, looking down the empty road that vanished among the oaks.

She nodded.

"I suppose you go in to the mainland with your aunts quite often?"

She shook her head.

"It must get pretty dull for you."

"Not very," she said, smiling. "My aunts bring me the papers and other things. Even movies. We've got a projector. My favorite stars are Antonio Morino and Alice Terry. I like her better even than Clara Bow."

He looked at her hard for a moment. "I suppose you read a lot?"

She nodded. "Fitzgerald's my favorite author." She started around the table, hesitated, suddenly grew shy. "Would you like some lemonade?"

HE'D noticed the dewed silver pitcher, but only now realized his thirst. Yet when she handed him a glass, he held it untasted and said awkwardly, "I haven't introduced myself. I'm Jack Barry."

She stared at his outstretched right hand, slowly extended her own toward it, shook it up and down exactly once, then quickly dropped it.

He chuckled and gulped some lemonade. "I'm a biology student. Been working at Wood's Hole the first part of the summer. But now I'm here to do research in marine ecology—that's sort of sea-life patterns—of the inshore islands. Under the direction of Professor Kesserich. You know about him, of course?"

She shook her head.

"Probably the greatest living biologist," he was proud to in-

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form her. "Human physiology as well. Tremendous geneticist. In a class with Carlson and Jacques Loeb. Martin Kesserich—he lives over there at town. I'm staying with him. You ought to have heard of him." He grinned. "Matter of fact, I'd never have met you if it hadn't been for Mrs. Kesserich."

The girl looked puzzled.

Jack explained, "The old boy's been off to Europe on some conferences, won't be back for a couple days more. But I was to get started anyhow. When I went out this morning Mrs. Kesserich—she's a drab sort of person—said to me, 'Don't try to sail to the farther islands.' So, of course, I had to. By the way, you still haven't told me your name."

"Mary Alice Pope," she said, speaking slowly and with an odd wonder, as if she were saying it for the first time.

"You're pretty shy, aren't you?"

"How would I know?"

The question stopped Jack. He couldn't think of anything to say to this strangely attractive girl dressed almost like a "flapper."

"Will you sit down?" she asked him gravely.

The rattan chair sighed under his weight. He made another effort to talk. "I'll bet you'll be glad when summer's over."

"Why?"

"So you'll be able to go back to the mainland."

"But I never go to the mainland."

"You mean you stay out here all winter?" he asked incredulously, his mind filled with a vision of snow and frozen spray and great gray waves.

"Oh, yes. We get all our supplies on hand before winter. My aunts are very capable. They don't always wear long lace dresses. And now I help them."

"But that's impossible!" he said with sudden sympathetic anger. "You can't be shut off this way from people your own age!"

"You're the first one I ever met." She hesitated. "I never saw a boy or a man before, except in movies."

"You're joking!"

"No, it's true."

"But why are they doing it to you?" he demanded, leaning forward. "Why are they inflicting this loneliness on you, Mary?"

SHE seemed to have gained poise from his loss of it. "I don't know why. I'm to find out soon. But actually I'm not lonely. May I tell you a secret?" She touched his hand, this time with only the faintest trembling. "Every night the loneliness gathers in around me—you're right about that. But then every morn-

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ing new life comes to me in a little box."

"What's that?" he said sharply.

"Sometimes there's a poem in the box, sometimes a book, or pictures, or flowers, or a ring, but always a note. Next to the notes I like the poems best. My favorite is the one by Matthew Arnold that ends,

'Ah, love, let us be true
To one another! for the world, which seems
To lie before us like a land of dreams,
So various, so beautiful, so new,
Hath really neither joy, nor love, nor light,
Nor certitude—' "

"Wait a minute," he interrupted. "Who sends you these boxes?"

"I don't know."

"But how are the notes signed?"

"They're wonderful notes," she said. "So wise, so gay, so tender, you'd imagine them being written by John Barrymore or Lindbergh."

"Yes, but how are they signed?"

She hesitated. "Never anything but 'Your Lover.' "

"And so when you first saw me, you thought—" He began, then stopped because she was blushing.

"How long have you been getting them?"

"Ever since I can remember. I have two closets of the boxes. The new ones are either by my bed when I wake or at my place at breakfast."

"But how does this—person get these boxes to you out here? Does he give them to your aunts and do they put them there?"

"I'm not sure."

"But how can they get them in winter?"

"I don't know."

"Look here," he said, pouring himself more lemonade, "how long is it since you've been to the mainland?"

"Almost eighteen years. My aunts tell me I was born there in the middle of the war."

"What war?" he asked startledly, spilling some lemonade.

"The World War, of course. What's the matter?"

Jack Barr was staring down at the spilled lemonade and feeling a kind of terror he'd never experienced in his waking life. Nothing around him had changed. He could still feel the same hot Sun on his shoulders, the same icy glass in his hand, scent the same lemon-acid odor in his nostrils. He could still hear the faint *chop-chop* of the waves.

And yet everything had changed, gone dark and dizzy as a landscape glimpsed just before a faint. All the little false notes had come to a sudden focus. For the lemonade had spilled on the headline of the newspaper the girl had tossed down, and the headline read:

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HITLER IN NEW DEFIANCE

Under the big black banner of that head swam smaller ones:

Foes of Machado Riot in Havana

Big NRA Parade Planned

Balbo Speaks in New York

SUDDENLY he felt a surge of relief. He had noticed that the paper was yellow and brittle-edged.

"Why are you so interested in old newspapers?" he asked.

"I wouldn't call day-before-yesterday's paper old," the girl objected, pointing at the dateline: July 20, 1933.

"You're trying to joke," Jack told her.

"No, I'm not."

"But it's 1953."

"Now it's you who are joking."

"But the paper's yellow."

"The paper's always yellow."

He laughed uneasily. "Well, if you actually think it's 1933, perhaps you're to be envied," he said, with a sardonic humor he didn't quite feel. "Then you can't know anything about the Second World War, or television, or the V-2s, or Bikini bathing suits, or the atomic bomb, or—"

"Stop!" She had sprung up and retreated around her chair, white-faced. "I don't like what you're saying."

"But—"

"No, please! Jokes that may be quite harmless on the mainland sound different here."

"I'm really not joking," he said after a moment.

She grew quite frantic at that. "I can show you all last week's papers! I can show you magazines and other things. I can prove it!"

She started toward the house. He followed. He felt his heart begin to pound.

At the white door she paused, looking worriedly down the road. Jack thought he could hear the faint *chug* of a motorboat. She pushed open the door and he followed her inside. The small-windowed room was dark after the sunlight. Jack got an impression of solid old furniture, a fireplace with brass andirons.

"Flash!" croaked a gritty voice. "After their disastrous break day before yesterday, stocks are recovering. Leading issues. . ."

Jack realized that he had started and had involuntarily put his arm around the girl's shoulders. At the same time he noticed that the voice was coming from the curved brown trumpet of an old-fashioned radio loudspeaker.

The girl didn't pull away from him. He turned toward her. Although her gray eyes were on him, her attention had gone elsewhere.

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"I can hear the car. They're coming back. They won't like it that you're here."

"All right they won't like it."

Her agitation grew. "No. you must go."

"I'll come back tomorrow," he heard himself saying.

"Flash! It looks as if the World Economic Conference may soon adjourn, mouthing jeers at old Uncle Sam who is generally referred to as Uncle Shylock."

Jack felt a numbness on his neck. The room seemed to be darkening, the girl growing stranger still.

"You must go before they see you."

"Flash! Wiley Post has just completed his solo circuit of the Globe, after a record-breaking flight of 7 days, 18 hours and 45 minutes. Asked how he felt after the energy-draining feat, Post quipped. . ."

HE was halfway across the lawn before he realized the terror into which the grating radio voice had thrown him.

He leaped for the branch overhanging the fence, vaulted up with the risky help of a foot on the barbed top. A surprised squirrel, lacking time to make its escape up the trunk, sprang to the ground ahead of him. With terrible suddenness, two steel-jawed semicircles clanked together just over the squirrel's head. Jack landed with one foot to either side of the sprung trap, while the squirrel darted off with a squeak.

Jack plunged down the slope to the rocky spine and ran across it, spray from the rising waves spattering him to the waist. Panting now, he stumbled up into the oaks and undergrowth of the first island, fought his way through it, finally reached the silent cove. He loosed the line of the *Annie O.*, dragged it as near to the cove's mouth as he could, plunged knee-deep in freezing water to give it a final shove, scrambled aboard, snatched up the boathook and punched at the rocks.

As soon as the *Annie O.* was nosing out of the cove into the cross waves, he yanked up the sail. The freshening wind filled it and sent the sloop heeling over, with inches of white water over the lee rail, and plunging ahead.

For a long while, Jack was satisfied to think of nothing but the wind and the waves and the sail and speed and danger, to have all his attention taken up balancing one against the other, so that he wouldn't have to ask himself what year it was and whether time was an illusion, and wonder about flappers and hidden traps.

When he finally looked back at the island, he was amazed to see how tiny it had grown, as

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distant as the mainland.

Then he saw a gray motorboat astern. He watched it as it slowly overtook him. It was built like a lifeboat, with a sturdy low cabin in the bow and wheel amidship. Whoever was at the wheel had long gray hair that whipped in the wind. The longer he looked, the surer he was that it was a woman wearing a lace dress. Something that stuck up inches over the cabin flashed darkly beside her. Only when she lifted it to the roof of the cabin did it occur to him that it might be a rifle.

But just then the motorboat swung around in a turn that sent waves drenching over it, and headed back toward the island. He watched it for a minute in wonder, then his attention was jolted by an angry hail.

Three fishing smacks, also headed toward town, were about to cross his bow. He came around into the wind and waited with shaking sail, watching a man in a lumpy sweater shake a fist at him. Then he turned and gratefully followed the dark, wide, fanlike sterns and age-yellowed sails.

II

THE exterior of Martin Kesserich's home—a weathered white cube with narrow, sharp-paned windows, topped by a cupola—was nothing like its lavish interior.

In much the same way, Mrs. Kesserich clashed with the darkly gleaming furniture, persian rugs and bronze vases around her. Her shapeless black form, poised awkwardly on the edge of a huge sofa, made Jack think of a cow that had strayed into the drawing room. He wondered again how a man like Kesserich had come to marry such a creature.

Yet when she lifted up her little eyes from the shadows, he had the uneasy feeling that she knew a great deal about him. The eyes were still those of a domestic animal, but of a wise one that has been watching the house a long, long while from the barnyard.

He asked abruptly, "Do you know anything of a girl around here named Mary Alice Pope?"

The silence lasted so long that he began to think she'd gone into some bovine trance. Then, without a word, she got up and went over to a tall cabinet. Feeling on a ledge behind it for a key, she opened a panel, opened a cardboard box inside it, took somethink from the box and handed him a photograph. He held it up to the failing light and sucked in his breath with surprise.

It was a picture of the girl he'd

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met that afternoon. Same flat-bosomed dress—flowered rather than white—no bandeau, same beads. Same proud, demure expression, perhaps a bit happier.

"That is Mary Alice Pope," Mrs. Kesserich said in a strangely flat voice. "She was Martin's fiancee. She was killed in a railway accident in 1933."

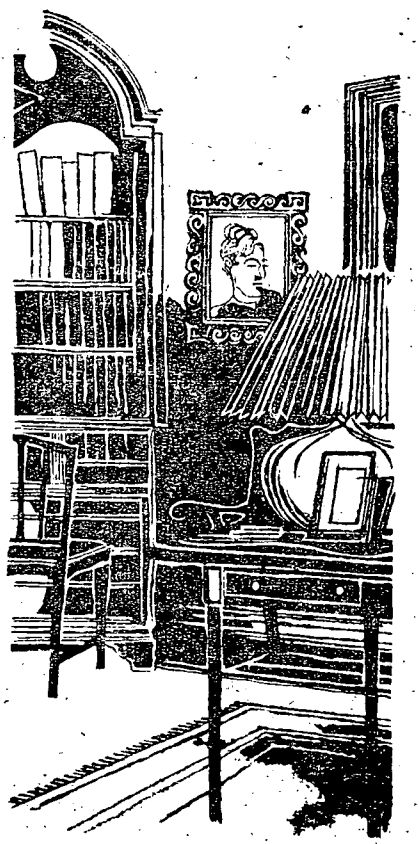
The small sound of the cabinet door closing brought Jack back to reality. He realized that he no longer had the photograph. Against the gloom by the cabinet, Mrs. Kesserich's white face looked at him with what seemed a malicious eagerness.

"Sit down," she said, "and I'll tell you about it."

Without a thought as to why she hadn't asked him a single question—he was much too dazed for that—he obeyed. Mrs. Kesserich resumed her position on the edge of the sofa.

"You must understand, Mr. Barr, that Mary Alice Pope was the one love of Martin's life. He is a man of very deep and strong feelings, yet as you probably know, anything but kindly or demonstrative. Even when he first came here from Hungary with his older sisters Hani and Hilda, there was a cloak of loneliness about him—or rather about the three of them.

"Hani and Hilda were athletic outdoor women, yet fiercely



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proud—I don't imagine they ever spoke to anyone in America except as to a servant—and with a seething distaste for all men except Martin. They showered all their devotion on him. So of course, though Martin didn't realize it, they were consumed with jealousy when he fell in love with Mary Alice Pope. They'd thought that since he'd reached forty without marrying, he was safe.

"Mary Alice came from a purebred, or as a biologist would say, inbred British stock. She was very young, but very sweet, and up to a point very wise. She sensed Hani and Hilda's feelings right away and did everything she could to win them over. For instance, though she was afraid of horses, she took up horseback riding, because that was Hani and Hilda's favorite pastime. Naturally, Martin knew nothing of her fear, and naturally his sisters knew about it from the first. But—and here is where Mary's wisdom fell short—her brave gesture did not pacify them; it only increased their hatred.

"Except for his research, Martin was blind to everything but his love. It was a beautiful and yet frightening passion, an insane cherishing as narrow and intense as his sisters' hatred."

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WITH a start, Jack remembered that it was Mrs. Kesserich telling him all this.

She went on, "Martin's love directed his every move. He was building a home for himself and Mary, and in his mind he was building a wonderful future for them as well—not vaguely, if you know Martin, but year by year, month by month. This winter, he'd plan, they would visit Buenos Aires, next summer they would sail down the inland passage and he would teach Mary Hungarian for their trip to Buda-Pesth the year after, where he would occupy a chair at the university for a few months . . . and so on. Finally the time for their marriage drew near. Martin had been away. His research was keeping him very busy—"

Jack broke in with, "Wasn't that about the time he did his definitive work on growth and fertilization?"

Mrs. Kesserich nodded with solemn appreciation in the gathering darkness. "But now he was coming home, his work done. It was early evening, very chilly, but Hani and Hilda felt they had to ride down to the station to meet their brother. And although she dreaded it, Mary rode with them, for she knew how delighted he would be at her cantering to the puffing train and his running up to lift her down from the saddle to welcome him home.

"Of course there was Martin's luggage to be considered, so the station wagon had to be sent down for that." She looked defiantly at Jack. "I drove the station wagon. I was Martin's laboratory assistant."

She paused. "It was almost dark, but there was still a white cold line of sky to the west. Hani and Hilda, with Mary between them, were waiting on their horses at the top of the hill that led down to the station. The train had whistled and its headlight was graying the gravel of the crossing.

"Suddenly Mary's horse squealed and plunged down the hill. Hani and Hilda followed—to try to catch her, they said, but they didn't manage that, only kept her horse from veering off. Mary never screamed, but as her horse reared on the tracks, I saw her face in the headlight's glare.

"Martin must have guessed, or at least feared what had happened, for he was out of the train and running along the track before it stopped. In fact, he was the first to kneel down beside Mary—I mean, what had been Mary—and was holding her all bloody and shattered in his arms."

A door slammed. There were steps in the hall. Mrs. Kesserich

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stiffened and was silent. Jack turned.

The blur of a face hung in the doorway to the hall—a seemingly young, sensitive, suavely handsome face with aristocratic jaw. Then there was a click and the lights flared up and Jack saw the close-cropped gray hair and the lines around the eyes and nostrils, while the sensitive mouth grew sardonic. Yet the handsomeness stayed, and somehow the youth, too, or at least a tremendous inner vibrancy.

"Hello, Barr," Martin Kesserich said, ignoring his wife.

The great biologist had come home.

III

"OH, yes, and Jamieson had a feeble paper on what he called individualization in marine worms. Barr, have you ever thought much about the larger aspects of the problem of individuality?"

Jack jumped slightly. He had let his thoughts wander very far.

"Not especially, sir," he mumbled.

The house was still. A few minutes after the professor's arrival, Mrs. Kesserich had gone off with an anxious glance at Jack. He knew why and wished he could reassure her that he would not mention their conversation to the professor.

Kesserich had spent perhaps a half hour briefing him on the more important papers delivered at the conferences. Then, almost as if it were a teacher's trick to show up a pupil's inattention, he had suddenly posed this question about individuality.

"You know what I mean, of course," Kesserich pressed. "The factors that make you you, and me me."

"Heredity and environment," Jack parroted like a freshman.

Kesserich nodded. "Suppose—this is just speculation—that we could control heredity and environment. Then we could recreate the same individual at will."

Jack felt a shiver go through him. "To get exactly the same pattern of hereditary traits. That'd be far beyond us."

"What about identical twins?" Kesserich pointed out. "And then there's parthenogenesis to be considered. One might produce a duplicate of the mother without the intervention of the male." Although his voice had grown more idly speculative, Kesserich seemed to Jack to be smiling secretly. "There are many examples in the lower animal forms, to say nothing of the technique by which Loeb caused a sea urchin to reproduce with no more stimulus than a salt solution."

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Jack felt the hair rising on his neck. "Even then you wouldn't get exactly the same pattern of hereditary traits."

"Not if the parent were of very pure stock? Not if there were some special technique for selecting ova that would reproduce all the mother's traits?"

"But environment would change things," Jack objected. "The duplicate would be bound to develop differently."

"Is environment so important? Newman tells about a pair of identical twins separated from birth, unaware of each other's existence. They met by accident when they were twenty-one. Each was a telephone repairman. Each had a wife the same age. Each had a baby son. And each had a fox terrier called 'Trixie.' That's without trying to make environments similar. But suppose you did try. Suppose you saw to it that each of them had exactly the same experiences at the same times . . ."

For a moment it seemed to Jack that the room was dimming and wavering, becoming a dark pool in which the only motionless thing was Kesserich's sphinx-like face.

"Well, we've escaped quite far enough from Jamieson's marine worms," the biologist said, all brisk again. He said it as if Jack were the one who had led the conversation down wild and unprofitable channels. "Let's get on to your project. I want to talk it over now, because I won't have any time for it tomorrow."

Jack looked at him blankly. "Tomorrow I must attend to a very important matter," the biologist explained.

IV

MORNING sunlight brightened the colors of the wax flowers under glass on the high bureau that always seemed to emit the faint odor of old hair combings. Jack pulled back the diamond-patterned quilt and blinked the sleep from his eyes. He expected his mind to be busy wondering about Kesserich and his wife—things said and half said last night—but found instead that his thoughts swung instantly to Mary Alice Pope, as if to a farthest island in a world of people.

Downstairs, the house was empty. After a long look at the cabinet—he felt behind it, but the key was gone—he hurried down to the waterfront. He stopped only for a bowl of chowder and, as an afterthought, to buy half a dozen newspapers.

The sea was bright, the brisk wind just right for the *Annie O.* There was eagerness in the way it smacked the sail and in the

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creak of the mast. And when he reached the cove, it was no longer still, but nervous with faint ripples, as if time had finally begun to stir.

After the same struggle with the underbrush, he came out on the rocky spine and passed the cove of the sea urchins. The spiny creatures struck an uncomfortable chord in his memory.

This time he climbed the second island cautiously, scraping the innocent-seeming ground ahead of him intently with a boathook he'd brought along for the purpose. He was only a few yards from the fence when he saw Mary Alice Pope standing behind it.

He hadn't realized that his heart would begin to pound or that, at the same time, a shiver of almost supernatural dread would go through him.

The girl eyed him with an uneasy hostility and immediately began to speak in a hushed, hurried voice. "You must go away at once and never come back. You're a wicked man, but I don't want you to be hurt. I've been watching for you all morning."

He tossed the newspapers over the fence. "You don't have to read them now," he told her. "Just look at the datelines and a few of the headlines."

When she finally lifted her eyes to his again, she was trembling. She tried unsuccessfully to speak.

"Listen to me," he said. "You've been the victim of a scheme to make you believe you were born around 1916 instead of 1933, and that it's 1933 now instead of 1951. I'm not sure why it's been done, though I think I know who you really are."

"But," the girl faltered, "my aunts tell me it's 1933."

"They would."

"And there are the papers . . . the magazines . . . the radio."

"The papers are old ones. The radio's faked—some sort of recording. I could show you if I could get at it."

"*These* papers might be faked," she said, pointing to where she'd let them drop on the ground.

"They're new," he said. "Only old papers get yellow."

"But why would they do it to me? *Why?*"

"Come with me to the mainland, Mary. That'll set you straight quicker than anything."

"I couldn't," she said, drawing back. "He's coming tonight."

"He?"

"The man who sends me the boxes . . . and my life."

Jack shivered. When he spoke, his voice was rough and quick. "A life that's completely a lie, that's cut you off from the world. Come with me, Mary."

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SHE looked up at him wonderingly. For perhaps ten seconds the silence held and the spell of her eerie sweetness deepened.

"I love you, Mary," Jack said softly.

She took a step back.

"Really, Mary, I do."

She shook her head. "I don't know what's true. Go away."

"Mary," he pleaded, "read the papers I've given you. Think things through. I'll wait for you here."

"You can't. My aunts would find you."

"Then I'll go away and come back. About sunset. Will you give me an answer?"

She looked at him. Suddenly she whirled around. He, too, heard the *chuff* of the Essex. "They'll find us," she said. "And if they find you, I don't know what they'll do. Quick, run!" And she darted off herself, only to turn back to scramble for the papers.

"But will you give me an answer?" he pressed.

She looked frantically up from the papers. "I don't know. You mustn't risk coming back."

"I will, no matter what you say."

"I can't promise. Please go."

"Just one question," he begged. "What are your aunts' names?"

"Irani and Hilda," she told him, and then she was gone. The hedge shook where she'd darted through.

Jack hesitated, then started for the cove. He thought for a moment of staying on the island, but decided against it. He could probably conceal himself successfully, but whoever found his boat would have him at a disadvantage. Besides, there were things he must try to find out on the mainland.

As he entered the oaks, his spine tightened for a moment, as if someone were watching him. He hurried to the rippling cove, wasted no time getting the *Annie O.* underway. With the wind still in the west, he knew it would be a hard sail. He'd need half a dozen tacks to reach the mainland.

When he was about a quarter of a mile out from the cove, there was a sharp *smack* beside him. He jerked around, heard a distant *crack* and saw a foot-long splinter of fresh wood dangling from the edge of the sloop's cockpit, about a foot from his head.

He felt his skin tighten. He was the bull's-eye of a great watery target. All the air between him and the island was tainted with menace.

Water splashed a yard from the side. There was another distant crack. He lay on his back in the cockpit, steering by the

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sail, taking advantage of what little cover there was.

There were several more *cracks*. After the second, there was a hole in the sail.

Finally Jack looked back. The island was more than a mile astern. He anxiously scanned the sea ahead for craft. There were none. Then he settled down to nurse more speed from the sloop and wait for the motorboat.

But it didn't come out to follow him.

V

SAME as yesterday, Mrs. Kesserich was sitting on the edge of the couch in the living room, yet from the first Jack was aware of a great change. Something had filled the domestic animal with grief and fury.

"Where's Dr. Kesserich?" he asked.

"Not here!"

"Mrs. Kesserich," he said, dropping down beside her, "you were telling me something yesterday when we were interrupted."

She looked at him. "You *have* found the girl?" she almost shouted.

"Yes," Jack was surprised into answering.

A look of slyness came into Mrs. Kesserich's bovine face. "Then I'll tell you everything. I can now.

"When Martin found Mary dying, he didn't go to pieces. You know how controlled he can be when he chooses. He lifted Mary's body as if the crowd and the railway men weren't there, and carried it to the station wagon. Hani and Hilda were sitting on their horses nearby. He gave them one look. It was as if he had said, 'Murderers!'

"He told me to drive home as fast as I dared, but when I got there, he stayed sitting by Mary in the back. I knew he must have given up what hope he had for her life, or else she was dead already. I looked at him. In the domelight, his face had the most deadly and proud expression I've ever seen on a man. I worshiped him, you know, though he had never shown me one ounce of feeling. So I was completely unprepared for the naked appeal in his voice.

"Yet all he said at first was, 'Will you do something for me?' I told him, 'Surely,' and as we carried Mary in, he told me the rest. He wanted me to be the mother of Mary's child."

Jack stared at her blankly.

Mrs. Kesserich nodded. "He wanted to remove an ovum from Mary's body and nurture it in mine, so that Mary, in a way, could live on."

"But that's impossible!" Jack objected. "The technique is being tried now on cattle, I know,

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so that a prize heifer can have several calves a year, all nurtured in 'scrub heifers,' as they're called. But no one's ever dreamed of trying it on human beings!"

MRS. Kesserich looked at him contemptously. "Martin had mastered the technique twenty years ago. He was willing to take the chance. And so was I—partly because he fired my scientific imagination and reverence, but mostly because he said he would marry me. He barred the doors. We worked swiftly. As far as anyone was concerned, Martin, in a wild fit of grief, had locked himself up for several hours to mourn over the body of his fiancee.

"Within a month we were married, and I finally gave birth to the child."

Jack shook his head. "You gave birth to your own child."

She smiled bitterly. "No, it was Mary's. Martin did not keep his whole bargain with me—I was nothing more than his 'scrub wife' in every way."

"You *think* you gave birth to Mary's child."

Mrs. Kesserich turned on Jack in anger. "I've been wounded by him, day in and day out, for years, but I've never failed to recognize his genius. Besides, you've seen the girl, haven't you?"

Jack had to nod. What confounded him most was that, granting the near-impossible physiological feat Mrs. Kesserich had described, the girl should look so much like the mother. Mothers and daughters don't look that much alike; only identical twins did. With a thrill of fear, he remembered Kesserich's casual words: " . . . parthenogenesis . . . pure stock . . . special techniques . . ."

"Very well," he forced himself to say, "granting that the child was Mary's and Martin's—"

"No! Mary's alone!"

Jack suppressed a shudder. He continued quickly, "What became of the child?"

Mrs. Kesserich lowered her head. "The day it was born, it was taken away from me. After that, I never saw Hilda and Hani, either."

"You mean," Jack asked, "that Martin sent them away to bring up the child?"

Mrs. Kesserich turned away. "Yes."

Jack asked incredulously, "He trusted the child with the two people he suspected of having caused the mother's death?"

"Once when I was his assistant," Mrs. Kesserich said softly, "I carelessly broke some laboratory glassware. He kept me up all night building a new setup, though I'm rather poor at work-

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ing with glass and usually get burned. Bringing up the child was his sisters' punishment."

"And they went to that house on the farthest island? I suppose it was the house he'd been building for Mary and himself."

"Yes."

"And they were to bring up the child as his daughter?"

Mrs. Kesserich started up, but when she spoke it was as if she had to force out each word. "As his wife—as soon as she was grown."

"How can you know that?" Jack asked shakily.

The rising wind rattled the windowpane.

"Because today—eighteen years after—Martin broke all of his promise to me. He told me he was leaving me."

VI

WHITE waves shooting up like dancing ghosts in the Moon-sketched, spray-swept dark were Jack's first beacon of the island and brought a sense of physical danger, breaking the trancelike yet frantic mood he had felt ever since he had spoken with Mrs. Kesserich.

Coming around farther into the wind, he scudded past the end of the island into the choppy sea on the landward side. A little later he let down the reefed sail in the cove of the sea urchins, where the water was barely moving, although the air was shaken by the pounding of the surf on the spine between the two islands.

After making fast, he paused a moment for a scrap of cloud to pass the moon. The thought of the spiny creatures in the black fathoms under the *Annie O.* sent an odd quiver of terror through him.

The Moon came out and he started across the glistening rocks of the spine. But he had forgotten the rising tide. Midway, a wave clamped around his ankles, tried to carry him off, almost made him drop the heavy object he was carrying. Sprawling and drenched, he clung to the rough rock until the surge was past.

Making it finally up to the fence, he snipped a wide gate with the wire-cutters.

The windows of the house were alight. Hardly aware of his shivering, he crossed the lawn, slipping from one clump of shrubbery to another, until he reached one just across the drive from the doorway. At that moment he heard the approaching *chuff* of the Essex, the door of the cottage opened, and Mary Alice Pope stepped out, closely followed by Hani or Hilda.

Jack shrank close to the shrubbery. Mary looked pale and blank-faced, as if she had re-

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treated within herself. He was acutely conscious of the inadequacy of his screen as the ghostly headlights of the Essex began to probe through the leaves.

But then he sensed that something more was about to happen than just the car arriving. It was a change in the expression of the face behind Mary that gave him the cue—a widening and sidewise flickering of the cold eyes, the puckered lips thinning into a cruel smile.

The Essex shifted into second and, without any warning, accelerated. Simultaneously, the woman behind Mary gave her a violent shove. But at almost exactly the same instant, Jack ran. He caught Mary as she sprawled toward the gravel, and lunged ahead without checking. The Essex bore down upon them, a square-snouted, roaring monster. It swerved viciously, missed them by inches, threw up gravel in a skid, and rocked to a stop, stalled.

THE first, incredulous voice that broke the pulsing silence, Jack recognized as Martin Keserich's. It came from the car, which was slewed around so that it almost faced Jack and Mary.

"Hani, you tried to kill her! You and Hilda tried to kill her again!"

The woman slumped over the wheel slowly lifted her head. In the indistinct light, she looked the twin of the woman behind Jack and Mary.

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"Did you really think we wouldn't?" she asked in a voice that spat with passion. "Did you actually believe that Hilda and I would serve this eighteen years' penance just to watch you go off with her?" She began to laugh wildly. "You've never understood your sisters at all!"

Suddenly she broke off, stiffly stepped down from the car. Lifting her skirts a little, she strode past Jack and Mary.

Martin Kesserich followed her. In passing, he said, "Thanks, Barr." It occurred to Jack that Kesserich made no more question of his appearance on the island than of his presence in the laboratory. Like Mrs. Kesserich, the great biologist took him for granted.

Kesserich stopped a few feet short of Hani and Hilda. Without shrinking from him, the sisters drew closer together. They looked like two gaunt hawks.

"But you waited eighteen years," he said. "You could have killed her at any time, yet you chose to throw away so much of your lives just to have this moment."

"How do you know we didn't like waiting eighteen years?" Hani answered him. "Why shouldn't we want to make as strong an impression on you as anyone? And as for throwing our lives away, that was your doing. Oh, Martin, you'll never know anything about how your sisters feel!"

He raised his hands bafflingly.

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"Even assuming that you hate me—" at the word "hate" both Hani and Hilda laughed softly—"and that you were prepared to strike at both my love and my work, still, that you should have waited . . ."

Hani and Hilda said nothing.

Kesserich shrugged. "Very well," he said in a voice that had lost all its tension. "You've wasted a third of a lifetime looking forward to an irrational revenge. And you've failed. That should be sufficient punishment."

Very slowly, he turned around and for the first time looked at Mary. His face was clearly revealed by the twin beams from the stalled car.

Jack grew cold. He fought against accepting the feelings of wonder, of poignant triumph, of love, of renewed youth he saw entering the face in the headlights. But most of all he fought against the sense that Martin Kesserich was successfully drawing them all back into the past, to 1933 and another accident. There was a distant hoot and Jack shook. For a moment he had thought it a railway whistle and not a ship's horn.

The biologist said tenderly, "Come, Mary."

JACK'S trembling arm tightened a trifle on Mary's waist. He could feel *her* trembling.

"Come, Mary," Kesserich repeated.

Still she didn't reply.

Jack wet his lips. "Mary isn't going with you, Professor," he said.

"Quiet, Barr," Kesserich ordered absently. "Mary, it is necessary that you and I leave the island at once. Please come."

"But Mary isn't coming," Jack repeated.

Kesserich looked at him for the first time. "I'm grateful to you for the unusual sense of loyalty—or whatever motive it may have been—that led you to follow me out here tonight. And of course I'm profoundly grateful to you for saving Mary's life. But I must ask you not to interfere further in a matter which you can't possibly understand."

He turned to Mary. "I know how shocked and frightened you must feel. Living two lives and then having to face two deaths—it must be more terrible than anyone can realize. I expected this meeting to take place under very different circumstances. I wanted to explain everything to you very naturally and gently, like the messages I've sent you every day of your second life. Unfortunately, that can't be.

You and I must leave the island right now."

Mary stared at him, then turned wonderingly toward Jack,

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who felt his heart begin to pound warmly.

"You still don't understand what I'm trying to tell you, Professor," he said, boldly now. "Mary is not going with you. You've deceived her all her life. You've taken a fantastic amount of pains to bring her up under the delusion that she is Mary Alice Pope, who died in—"

"She *is* Mary Alice Pope," Kesserich thundered at him. He advanced toward them swiftly. "Mary darling, you're confused, but you must realize who you are and who I am and the relationship between us."

"Keep away," Jack warned, swinging Mary half behind him. "Mary doesn't love you. She can't marry you, at any rate. How could she, when you're her father?"

"Barr!"

"Keep off!" Jack shot out the flat of his hand and Kesserich went staggering backward. "I've talked with your wife—your wife on the mainland. She told me the whole thing."

KESSERICH seemed about to rush forward again, then controlled himself. "You've got everything wrong. You hardly deserve to be told, but under the circumstances I have no choice. Mary is not my daughter. To be precise, she has no father at all. Do you remember the work that Jacques Loeb did with sea urchins?"

Jack frowned angrily. "You mean what we were talking about last night?"

"Exactly. Loeb was able to cause the egg of a sea urchin to develop normally without union with a male germ cell. I have done the same thing with a human being. This girl is Mary Alice Pope. She has exactly the same heredity. She has had exactly the same life, so far as it could be reconstructed. She's heard and read the same things at exactly the same times. There have been the old newspapers, the books, even the old recorded radio programs. Hani and Hilda have had their daily instructions, to the letter. She's retraced the same time-trail."

"Rot!" Jack interrupted. "I don't for a moment believe what you say about her birth. She's Mary's daughter—or the daughter of your wife on the mainland. And as for retracing the same time-trail, that's senile self-delusion. Mary Alice Pope had a normal life. This girl has been brought up in cruel imprisonment by two insane, vindictive old women. In your own frustrated desire, you've pretended to yourself that you've recreated the girl you lost. You haven't. You couldn't. Nobody could — the

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great Martin Kesserich or anyone else!"

Kesserich, his features working, shifted his point of attack. "Who are you, Mary?"

"Don't answer him," Jack said. "He's trying to confuse you."

"Who are you?" Kesserich insisted.

"Mary Alice Pope," she said rapidly in a breathy whisper before Jack could speak again.

"And when were you born?" Kesserich pressed on.

"You've been tricked all your life about that," Jack warned.

But already the girl was saying, "In 1916."

"And who am I then?" Kesserich demanded eagerly. "Who am I?"

THE girl swayed. She brushed her head with her hand.

"It's so strange," she said, with a dreamy, almost laughing throb in her voice that turned Jack's heart cold. "I'm sure I've never seen you before in my life, and yet it's as if I'd known you forever. As if you were closer to me than—"

"Stop it!" Jack shouted at Kesserich. "Mary loves me. She loves me because I've shown her the lie her life has been, and because she's coming away with me now. Aren't you, Mary?"

He swung her around so that her blank face was inches from his own. "It's me you love, isn't it, Mary?"

She blinked doubtfully.

At that moment Kesserich charged at them, went sprawling as Jack's fist shot out. Jack swept up Mary and ran with her across the lawn. Behind him he heard an agonized cry—Kesserich's—and cruel, mounting laughter from Hani and Hilda.

Once through the ragged doorway in the fence, he made his way more slowly, gasping. Out of the shelter of the trees, the wind tore at them and the ocean roared. Moonlight glistened, now on the spine of black wet rocks, now on the foaming surf.

Jack realized that the girl in his arms was speaking rapidly, disjointedly, but he couldn't quite make out the sense of the words and then they were lost in the crash of the surf. She struggled, but he told himself that it was only because she was afraid of the menacing waters.

He pushed recklessly into the breaking surf, raced gasping across the middle of the spine as the rocks uncovered, sprang to the higher ones as the next wave crashed behind, showering them with spray. His chest burning with exertion, he carried the girl the few remaining yards to where the *Annie O.* was tossing. A sudden great gust of wind almost did what the waves had failed to do,

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but he kept his footing and lowered the girl into the boat, then jumped in after.

She stared at him wildly. "What's that?"

He, too, had caught the faint shout. Looking back along the spine just as the Moon came clear again, he saw white spray rise and fall—and then the figure of Kesserich stumbling through it.

"Mary, wait for me!"

The figure was halfway across when it lurched, started forward again, then was jerked back as if something had caught its ankle. Out of the darkness, the next wave sent a line of white at it neck-high, crashed.

Jack hesitated, but another great gust of wind tore at the half-raised sail, and it was all he could do to keep the sloop from capsizing and head her into the wind again.

Mary was tugging at his shoulder. "You must help him," she was saying. "He's caught in the rocks."

He heard a voice crying, screaming crazily above the surf:

"Ah, love, let us be true
To one another! for the world—"

The sloop rocked. Jack had it finally headed into the wind. He looked around for Mary.

She had jumped out and was hurrying back, scrambling across the rocks toward the dark, struggling figure that even as he watched was once more engulfed in the surf.

Letting go the lines, Jack sprang toward the stern of the sloop.

But just then another giant blow came, struck the sail like a great fist of air, and sent the boom slashing at the back of his head.

His last recollection was being toppled out onto the rocks and wondering how he could cling to them while unconscious.

VII

THE little cove was once again as quiet as time's heart. Once again the *Annie O.* was a sloop embedded in a mirror. Once again the rocks were warm underfoot.

Jack Barr lifted his fiercely aching head and looked at the distant line of the mainland, as tiny and yet as clear as something viewed through the wrong end of a telescope. He was very tired. Searching the island, in his present shaky condition, had taken all the strength out of him.

He looked at the peacefully rippling sea outside the cove and thought of what a churning pot it had been during the storm. He thought wonderingly of his rescue—a man wedged unconscious between two rock teeth, kept somehow from being washed

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away by the merest chance.

He thought of Mrs. Kesserich sitting alone in her house, scanning the newspapers that had nothing to tell.

He thought of the empty island behind him and the vanished motorboat.

He wondered if the sea had pulled down Martin Kesserich and Mary Alice Pope. He wondered if only Hani and Hilda had sailed away.

He winced, remembering what he had done to Martin and Mary by his blundering infatuation. In his way, he told himself, he had been as bad as the two old women.

He thought of death, and of time, and of love that defies them.

He stepped limpingly into the *Annie O.* to set sail—and realized that philosophy is only for the unhappy.

Mary was asleep in the stern.

—FRITZ LEIBER

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EDUCATION OF A MARTIAN

It was for his ideals Joyce loved the alien. But ideals are conditioned reflexes...

By JOSEPH SHALLIT

Illustrated by EMSH

WALTER HARLEY glowered across the room at his daughter. He didn't like the willful tone that crept into her voice these days; he didn't like the way her gray eyes spread wide at him, the way her lips tensed, the way she drew herself up, tall and slim, an arch of determination. The darned girl had grown up too fast, that was the trouble.

Joyce faced up to his scowl, shaky as she was. She knew what he was thinking, because he had told her enough times—she was a headstrong girl without a brain cell to her name; her college education had been a waste; worse than that, it had pumped her

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full of crazy ideas, had knocked her sense of values upside down.

"How anybody in their right mind . . . " he growled at her. "Listen, you've already been to Mars. You've seen it. What do you want to go to that miserable, dried-up hole again for?"

"Because . . . because I was happy there," she said tremulously.

"What? With those miserable savages?" He slapped his euphoria pipe down on the table. "Ethel, will you listen to that?"

Joyce's mother, plump and round-shouldered and vague-eyed, was deep in her reclining chair, the miniature transviewer on her lap, watching a garden party in Rome.

"What is it, dear?" she asked unhappily.

"This crazy girl wants to take her vacation on Mars again."

"Well . . . it is educational," Ethel said.

Harley made a wild, exasperated sound. "What do you know about it? You've never been there. It's a dried-up hole, I tell you. It's a slum—it's one great big slum. Just one decent hotel in the whole place, and that's only because some of our boys went out there and put it up for them."

"That awful hotel—" Joyce caught herself. Not an argument about this, please! There was trouble enough waiting for her.

"I wouldn't stay at the hotel," she said quietly.

"What do you mean? Where would you stay?"

"With some people I know there."

She saw his heavy eyebrows clench, saw his eyes search her suspiciously. She heard her mother's uneasy movements. She sat tautly, her hands in her lap.

"Who," Harley said finally, "are these people?"

"Just . . . some friends," Joyce said. Now it was coming, now, now.

"What friends?" Her father's voice was lower, harsher.

"Just some people I met when I was there last time."

"Just some . . . . Say! Is this why we've been running up these solarphone bills? What've you been doing—talking to these people every week?"

"Only a few times."

"Look here. Look at me. Joyce, answer me. Have you been talking to that fellow you told us about—the one you met on your other trip?"

She let it out, a tiny, miserable, "Yes."

Harley's hand slammed down on the table. He wrestled his heavy body up out of his chair, stamped halfway across the room toward her and stopped.

"Young lady, I'm not going to have this. I'm not going to have

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anything like this! You hear? You want to get tangled up with him? My God, you've been communicating with him for a *year*?"

"Whenever I was able to," Joyce said hoarsely, looking at the floor.

"Joyce!" He came to her, reached down and lifted her chin. "Joyce, you're not—you're not in love with this—this creature!"

She nodded, suddenly angered at her weakness, angered at the wetness in her eyes.

"Oh, my God!" Harley raised his arms, brought them down with a slap against his thighs. He turned away from her. He glared at his wife, who was drifting nervously up out of her chair. He turned back to Joyce. "You're not serious. You can't be. This can't—this just can't happen to us. You'll have to get this foolishness out of your head right now. Right this minute. My God, the next thing you know, you'll be wanting to marry one of those things."

"I do . . ." The sound barely came out. She swallowed, forced her voice up. "I am going to marry him."

A BLAST of silence swept the room, but, strangely, the shock of it didn't touch her. All at once, she was calm, quiet. She had said it, and now she was armored against everything.

"No," her father was saying dully. "No, Joyce. No."

"I'm sorry, Dad," she said all in a rush. "I've thought about it a long time. I thought I'd forget him after a little while. I wasn't able to. I'm in love with him—I'll always be in love with him. When I come back, I'm bringing him with me. We're going to be married here."

Now, finally, the storm broke out of him. He yelled at her, he stamped around, his fists pounded the air—it was just as she had pictured it, dreaded it. Yet she was unshaken now, detachedly able to watch him as if he were some unruly, unintelligent child. I am going to marry him, she had said, and once the words were out, everything else was easy. There were no problems. There was nothing to be afraid of.

"His name is Gregrill," she said. "They don't have last names. We'll have to make one up or perhaps use mine."

"I'll see my daughter dead before I let her marry a Martian!" Harley roared.

"But if she really loves him—" Ethel intruded timorously.

"Loves him? Love that miserable scum?"

"Dad, please," Joyce said quietly. "You're condemning somebody you've never seen."

"I don't have to see him! He's

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a Martian, isn't he? He has horns, doesn't he?"

"They're not horns. They're antennae."

"Call them what you like, they're horns!"

"They're antennae, Dad," Joyce repeated firmly. "They're proof of advanced development. They can communicate with each other hundreds of miles. They can sense instantly—"

"I don't want to hear about it!"

"But, dear," Ethel tried again, "sometimes, when they marry an Earthling girl, they cut those horns off, and then they look just like us."

"I wouldn't let him—" Joyce bit off each word—"do any such thing. I'd be utterly ashamed of him. I wouldn't marry him if he knuckled under to our prejudices like that. What does he have to be apologetic about? He's a superior being—"

"Superior?" her father howled at her, but his voice was losing its power.

"IN spite of our buildings and machines and things, they're far richer than we are, really. They have such a richness of feeling, such warmth, such sensitivity. They understand and feel so much more than we do. It's—it's fantastic. It's just something we can't comprehend."

"I see," he said bitterly. "And how are you going to comprehend them?"

"Gregrill can speak Earthling as well as I can," Joyce said. "He's a graduate of the university there in Memnonia. Maybe, with his guidance, I'll eventually get some insight into—"

"My God," Harley said dully. He walked unsteadily away from her and fell into his chair. "A daughter of mine . . . " He looked at her again. "Joyce, can't you see it's impossible? It couldn't work. These mixed marriages have never worked out. Never! Don't you see how it would be? You'd be an outcast. None of your friends would ever want to see you again."

"Well, if they should happen to be stupid and prejudiced—"

"*I'm* that stupid and prejudiced! I wouldn't let a Martian in my house! They're the scum of the Solar System!"

"Dad, I won't listen to you talk like that."

"What do you want to do—be the wife of a janitor?" he went on relentlessly. "Porters and janitors, that's all they're fit for."

"If they were ever given a chance—"

"A chance? What would they do with it? Loaf around dreamily, get nowhere. Nowhere at all! And pull us down to their level while they're fouling up our civilization!"

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Joyce stood up, her hands trembling.

"You're not going to Mars!" Harley shouted. "You're not going, you hear? You're staying right here on earth!"

"I'm afraid," she said unsteadily, "that you're too late. I already have my ticket. I expected you'd make a fuss. My—my trunk is at the spaceport. Nothing can stop me now, Dad."

"I'll stop you. You'll never marry that scum. By God, if I have to take it to the Panterrestrial Court—"

"Good-by, Dad. I'm not booked to sail till Thursday, but I think it's better if I spend the remaining days in a hotel. It'll be more comfortable for all of us."

"Joyce, come back here!"

"Good-by, Dad." She waved a shaky hand at her mother. "Good-by, Mom. See you soon."

"Joyce! Come back!"

She went out, quietly closing the door behind her.

THE huge 1200-passenger spaceship settled down slowly toward the landing field, its braking jets making a queer whistling sound in the thin Martian air. The passengers crowded to the windows. Most of them were already in their thermosuits, though the daylight temperature was close to fifty degrees. Some were even adjusting their oxygen packs. These weren't necessary at all, except for long hikes or intense exertion, which few of the visitors would indulge in. But they'd bought the things and they were going to use them—it was part of the adventure.

Most of the passengers were working people on vacation, taking advantage of the special two-in-a-room rate. There were a few salesmen, nervous but hopeful about the possibilities of opening up the hinterlands; so far, only Memnonia, the Martian capital, had provided Earthlings with any business.

In the bow of the spaceship was a crowd of girls, a college graduating class. Some of them were dressed in the new skin-tight thermosuits which were stirring up so much fuss in the fashion magazines. Listening to their ecstatic, senseless chatter, Joyce suddenly felt immensely older. The day, thirteen months ago, when she first sighted the Memnonian landscape with her own class, seemed impossibly long ago . . .

The ship nestled in against the vast loading ramp. A whistle sounded. The doors slid open. Husky, bare-chested Martian porters crowded aboard, began wheeling out the luggage. Joyce stepped out into the pale sunlight. The clear, thin air tingled

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at her nostrils, dizzied her, as she'd known it would till she got used to it. She followed her porter down the ramp. It seemed to her, in her giddiness, that Gregrill himself was down there, down at the end of the ramp, bronzed, bare-armed, coming toward her—

It was he!

He had made the two-hundred-mile trip to meet her!

She began to run. She stumbled, caught herself on somebody's arm, ran again, plunged against him, lost herself against his big, powerful chest.

"Oh, Greg! Greg, you're here!"

It was a long while before she could pull herself away to look at him. She had forgotten his strength, the magnificent arch of his chest. He was wearing a white fiber vest in the traditional style, sleeveless, cut low in front. His sun-washed skin glowed like polished bronze. The highlights shone on the strong, high arc of his nose, the ridge of his cheekbones. His fragile russet antennae swayed like wheat stalks in the wind.

There were muttered complaints around her. She was being shoved, prodded. She'd hardly realized they were standing in the midst of the swarming passengers.

"Oh," she laughed tremulously, "let's move. My luggage. Where—oh, there it is, that man over there with the cart."

"I will get it," Gregrill said.

"Oh, no, please."

But he was already striding away, big and powerful, towering over most of the Earthlings who were scurrying past. She saw him give something to the Martian porter, watched him swing the trunk up on his shoulder. It writhed in her, it devastated her, her father's contemptuous dismissal — "porters and janitors, that's all they're fit for."

"Greg, put it down," she said frantically. "I won't have you carrying it!"

He smiled at her indulgently. "It is not heavy."

"I don't want you to," she pleaded.

"Why do you not want me to?" he asked puzzledly. "Somebody must."

But how could she say it? How could she discuss it at all? She walked beside him, dumbly. They went down the ramp to where the aircabs were loading. An Earthling company had put in all the air transport here; the Martians themselves had never bothered to develop anything more advanced than the *eshbrug*, a lumbering, three-wheeled, sun-powered vehicle.

"We shall take the airbus," Gregrill said.

"Oh, do we have to?" she asked.

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"How else can we go?"

"Can't we get an *eshbrug*?"

He looked at her wonderingly. "To travel three times as long? I am aware that you are tired—"

"I'm tired of a lot of things," she blurted. "I'm tired of all the smooth, cynical, streamlined — Right now, I'd rather walk the whole way than step into an Earthling airbus."

He gave an uncertain laugh. "I am not sure that I understand your meaning."

"I'll explain it some time."

But how could she ever? He thought Earthlings were all such noble, shining, gifted creatures. How could she tell him of the rot at the heart of so many of them?

"Come on," she insisted desperately. "Let's find an *eshbrug*."

THE driver let them out at Gregrill's road. Gregrill shouldered the trunk, and they walked down past the irregular row of red, sunbaked, dome-shaped houses, each with its big tank in the rear for catching Mars' meager rainfall. Joyce felt a quickening, a surge of warmth, when she saw them and the quiet, open-faced people in their doorways, smiling their shy welcomes. She was coming home.

She was coming home . . .

Gregrill's mother and father were waiting just inside their door. They opened their arms; they hardly said a word. Joyce ran to them, folded them against her. She didn't mind the tears.

She let them lead her into the main room, let them seat her, put pillows around her. She sat there bathing in their tenderness, their simple good-heartedness.

Couldn't everybody see it? Why couldn't her father know it? These were the best people in the Universe!

Dinner was an Earthling meal. Joyce had been looking forward to a dish of *mrila*, the Martian rice, and *krulevak*, the white fruit that tasted like luscious chicken meat. But Gregrill's parents had obviously felt that their humble foods were too mean for her exalted taste and they had gone to the expense of bringing in vegetables and meats from the Earthling import shop in Memnonia.

Joyce hid her disappointment. She had an impulse to say, "Please, please don't mimic our Earthling ways. Stay the way you are. Don't spoil anything. Don't lose what you have."

After dinner, Gregrill took her for a walk. Joyce had her thermosuit on now. The Sun was setting, and the startling cold of the Martian night was coming in fast. Gregrill changed his fiber vest for a sleeved jacket, though of the same light material. It was incredible how little protection

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these people needed against the cold. But, of course, they'd adapted to it.

They walked along the edge of the gorge that cut through the stunted forest half a mile from Gregrill's home. The rough sides of the gorge rose sheer and splendid, a marvel of glittering color—red, orange, yellow, brown. Far down on the rocky bed, a shallow stream flowed sluggishly to the south.

Soon, as summer came on, the stream would quickly deepen. From the northern ice fields, a torrent of blue water would come rushing down the gorges, and the heavy rains would come, and the red ground underfoot would turn to a miraculous green, and the *mrila* would sprout up like a rug of green velvet across the wide fields and the terraced hills.

If she could only stay here, if they could only build their lives here with these simple, good-hearted people . . .

But she knew it couldn't be. Gregrill would be wasted here. Earth, despite all its hatefulness for her, was the only place where his genius would have a chance to unfold and display its potentialities.

"It is time that we go back?" Gregrill asked. "You are cold?"

Suddenly, helplessly, Joyce began to laugh.

"What is it?" Gregrill said, confused by the sudden laughter.

"The funny stiff way you talk!" She laughed on and on. She couldn't stop.

"I am sorry," he said, turning aside, his face full of hurt.

"Oh, no!" She caught his arm. "Don't misunderstand. I love the way you talk; I want you always to talk the way you do now. Don't change—please don't ever change. I love you just as you are."

GREGRILL got his visa five days later. It was a complicated affair. Joyce had to sign half a dozen affidavits at the Earthling consulate, all certifying in one way or another that she intended to marry Gregrill as soon as they reached Earth, and that she guaranteed he wouldn't become a public charge. It was practically the only way a Martian had of getting to Earth.

It infuriated her, this stupid legislation by which Earth denied itself everything these people could contribute to its culture. A few years ago, the Earthling government had admitted several thousand Martians to fill the pressing shortage of menial labor, and had permitted Venusians to take jobs as room stewards and waiters on the spaceships; and by that trivial concession, it had felt it was fulfilling its obligations to the Interplanetary Union.

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When would it learn what its narrow prejudices were costing? Would it have to wait till someone like Gregrill stepped forward and demonstrated all the richness it was missing?

The formal good-bys had been said. The neighbors had held a party for them. It had been in a clearing behind the houses, out in the clean, lemon-yellow sunlight. They had eaten roasted *trork*, the crustacean delicacy from the northern gorges, and *mrila* made into candied patties. Gregrill's mother and father had danced the grave, stately farewell dance. And now, on their final evening on Mars, Joyce and Gregrill were taking their last walk along the deep, echoing gorge.

She had just been watching him finish his packing, and the pain of it still sat in her throat. He had included his college books—every one of his texts and notebooks—packing them in so reverently, so pathetically confident that all he had to do was follow his classroom precepts, and recognition and success would come tumbling into his hands . . .

"I hope that your parents will like me as well as my parents like you," Gregrill said.

"Oh, yes," Joyce assured him hoarsely.

"Perhaps they will not be pleased that you marry a Martian."

"No, Greg, no. They'll—" But she couldn't carry it on.

He turned to face her; he looked at her hard. He was starting to speak, to ask the obvious questions, but she flung herself against him.

"Greg! Let's get married here! Let's get married before we leave."

He held her away from him so he could look at her. "But you had wished to be married on Earth," he said bewilderedly.

"I know, but I've changed my mind. I want it here, now. Oh, Greg, I'm afraid . . ."

His big russet eyes narrowed, his high-winged nostrils flared, scenting danger. "You are afraid of what?" he asked quietly.

"I don't know, Greg. I—I'm just afraid something will happen, something will go wrong, I don't know what." She couldn't look him in the eyes. "Let's get married here, in the morning, before we leave. Then we'll be married.

"Nothing can go wrong."

"Will not your parents be angered that you—"

"No, no, Greg. It'll be all right. This is the best way, believe me."

"I believe you," he said gravely.

And it caught her again, his small-boy solemnity. She was caught in a burst of helpless laughter. "Oh, Greg, I love you!"

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THEY were married by a Martian priest in a small red-draped temple in Memnonia, not far from the spaceport. The ceremony was without words, like all religious rites on Mars. The tall, round-bodied priest, a huge cylinder of a man in heavy ritual fiber robes, stood facing them, his hands stiff against his sides, his eyes closed, his heavy features motionless.

Joyce closed her eyes, too. She strained to hear, feel, sense something of what was passing between the priest and Gregrill. Surely, if she strained hard enough, she would catch some echo, some aura. But the air defied her; she was deaf, blind, insensate; she was cut off irrevocably from this higher level of communication. Perhaps their children . . .

"He is saying the words now," Gregrill whispered in her ear. "You two together . . . comfort each other . . . against the darkness and the drought . . . through the long dry misery of winter . . . when the water is locked and nothing grows . . . till the glad day of rain and running streams . . . you two together . . . comfort each other . . ."

"Say yes, my darling," Gregrill told her.

"Yes, yes! Oh, yes!"

They were outside, striding exultantly through the sunshine, the light wind tossing their hair, and the words kept singing to her: "Through the long dry misery of winter . . . till the glad day of rain . . ."

Oh, yes, Greg! Yes!

When they reached the spaceship, their bags had already been taken to their stateroom, unpacked, the clothing arranged in the dressers—the meticulous work of the Venusian stewards. Even the bedcovers were turned down, her nightgown laid out.

"Greg," she said in a rush of embarrassment, "let's go out and watch the . . . watch how we take off."

"You go, and I shall join you soon," he said. "I must wash and anoint myself as a bridegroom."

Joyce went down the corridor into the observation rotunda. The huge semicircular window was cluttered with jabbering passengers. She squeezed in among them, but she stayed only a moment. She pushed her way back out and went to a table near the head of the corridor, and waited restlessly for him. Midway down the corridor, a Venusian steward, a scrawny little gray-skinned, long-beaked fellow, was running a cleaning machine over the floor. She smiled at him, but he turned his face shyly away.

And then Gregrill came, moving up the corridor with his lithe, magnificent grace.

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His wet hair glistened.

"Greg, you look wonderful!" she cried, instantly aware of how foolish she sounded.

He speeded his steps. He didn't see the cleaning hose in his path. The Venusian moved quickly to pull it aside, but it caught Gregrill's foot. He stumbled, caught himself on the corridor rail. Swiftly he turned, his arm swung out, his forearm slammed against the jaw of the little Venusian, sending him crashing down against his cleaning machine. Gregrill looked down at him a moment. Then he turned, gave Joyce a broad smile and walked to her table.

"Greg." Her throat was dry. "Why did you do that? He didn't mean it."

"It is his duty to avoid such accidents," Gregrill said.

"But look, he's still lying there. Let's go help him."

"Leave him there," he said. "He is only a Venusian."

"Only a—?"

"Venusian." His lips curled. "They are the scum of the Solar System."

The tremor that went through her was lost in the thrust of the jets as the ship took off.

"They are not even fit for cleaning floors," Gregrill said. He suddenly smiled. "Do you not see the change I have made?" He gestured at his head.

Through tear-blinded eyes, she saw his glossy waves of hair. The antennae were gone!

"It hurt only a little," he said. "I could not wait until I had them off. I have been ashamed of them for so long."

Lord, who was this person she had married? *She didn't know him!*

"I see that you are still upset," he said. "Please understand that these Venusians must be kept in their place."

It was some stranger. She couldn't be married to him. She couldn't!

"I wonder if I look like an Earthling now," he said. "Tell me, do you think that I look a little like your father and his friends?"

She answered him wearily, defeatedly: "Yes, Greg. You do. Exactly."

—JOSEPH SHALLIT

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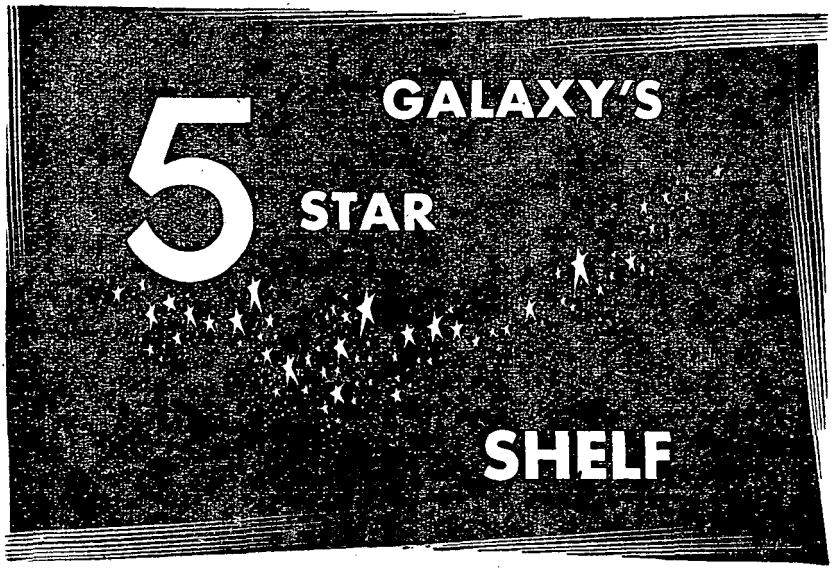

998 *by Edward Hyams. Pantheon Books, Inc., New York, 1952. 208 pages, $2.75*

I PROBABLY have no business bringing up this book in these hallowed pages, but I can't help it. It is the best satire the English language has produced in decades. It is also science fiction —of a sort. It tells of the "creation" of a fantastic super-super-radar, out of parts of a baby's pram and pawnbroker's globes, fastened to the mast of a small naval vessel belonging to an imaginary small neutral nation. Small but *very* ingenious!

The tale takes place slightly in the future; a brand-new and better world comes out of it—temporarily, at least—and it's full of gadgetry and derring-do, like any *regular* science fiction. The only thing is, nothing super-scientific is developed, with the possible exception of super-psychology of crowd behavior that is the only really fantastic thing about the whole hilarious, bitter, brilliant book.

Despite its heavy load of Britishisms, and the indubitable fact that it is highly unkind to established orders such as the Press, the Military, Diplomacy, and—

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most of all, perhaps—the Russians *and* the Americans (it's rather a neutralist book, I suppose), it is unreservedly wonderful. To say that it is in the same class as "Mr. Adam" by Pat Frank is to give Frank's pleasant little book unmerited praise. Nevertheless, the two have much in common. If you liked "Mr. Adam" you certainly will like this.

THE IRON STAR by John Taine. Fantasy Publishing Co., Inc., Los Angeles, 1951. 312 *pages,* $3.00

FIRST published by E. P. Dutton & Co. back in 1930, this relatively minor item in the Taine catalog of weird science fantasy is now reprinted in an attractive period format. Persons interested in the "pre-science fiction" period of American fantastic writing will do well to pick it up. It is what H. L. Gold calls "bridge" science fiction—a link between mundane literature and the highly advanced science fiction of today.

It tells of a meteor in darkest Africa containing an unknown new element which has a ghastly effect on human beings. Emitting vapors that are as habit-forming as opium, it makes addicts retrogress toward the ape. The story is woven around the melodrama of a "missionary" whose mission in life is to kill all apes and thus destroy the idea of evolution. In Africa, he becomes an addict of the malign emanations and gradually rots away, dragging down his daughter and wife, and becoming involved in an astonishing battle which ends with the destruction of the meteor.

There is much excellent descriptive material on Africa—whether real or not, I'm unable to say—and many of those horrible pen-pictures of catastrophe and corny yet masterful observations on the human scene, made from a cynic's perch, that light up even the poorest and sociologically most immature of Taine's novels.

The Iron Star is not one of his naive pre-Hitler race prejudices, which is in the book's favor.

As a piece of fiction, it holds the attention, despite its inadequate literary technique, and that is probably more to the point.

FIVE SCIENCE FICTION NOVELS Compiled by Martin Greenberg. Gnome Press, Inc. New York, 1952. 382 *pages,* $3.50

THREE good, two not so good—that is the mark for this new collection from Gnome.

Why Mr. Greenberg felt he had to commit Jack Williamson's "Crucible of Power" and Norvell

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W. Page's "But Without Horns" to the permanence of a hard-bound book is more than I can figure out. Both are 13-year old potboilers, far better left to obscurity.

Of the other three, two deal with parallel worlds and one with the world of tomorrow. Fritz Leiber's "Destiny Times Three" (1945) is faintly overpowering and largely fantasy, but even so extremely persuasive. It deals with three parallel worlds, all very nearly alike, but only one really viable.

A. E. van Vogt's 1946 "The Chroniclers" deals with two rather than three worlds. This is the one about the Earth-citizen who has a third eye, by means of which he enters the parallel world of the three-eyed. There, through typically van Vogtian plot complexities, the Earthian saves the advanced civilization from destruction. Intellectually enthralling, but slightly frapped.

Norman L. Knight's "Crisis in Utopia" (1940) is a rich and very pleasant tale of our own middle future. A new genetic pattern has been developed to breed a truly amphibious men, and the ocean floor is about to become Man's habitation as well as the dry land. The concept and its fascinating machinery occupies most of the tale; there is a Mad Scientist thrown in for melodrama, but he doesn't do too much damage. Delightful, and pointed, too.

ROBUR THE CONQUEROR, by Jules Verne. Didier, Publishers, New York, 1952. 261 *pages,* $2.95

HERE is one of the real archeological finds of the year, if you can call so well-known a classic a find.

Robur, whose adventures are told in the two novels included in this book (the sequel is called *The Master of the World*), is a truly original character. Verne's ideas about him, about society, and in particular about the art of heavier-than-air flight, are fascinating and strangely modern. There is sharp satire in much of the writing about Americans; some astonishingly accurate data on airplanes (written years before the Wright's first flight); and, toward the end, a memorable attack on the misuses of power.

The firm of Didier is to be commended for reissuing this volume, the seventh in its uniform edition of Verne's works. The others already available at the same price are *The Adventures of Captain Hatteras, Eight Hundred Leagues on the Amazon, Five Weeks in a Balloon, Round the World in Eighty Days, A Trip to the Center of*

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the Earth, and *From the Earth to the Moon.* All are handsome volumes and all have special introductions. The one accompanying *Robur the Conqueror* is by Major Alexander P. de Seversky, and a pleasant appreciation it is.

MURDER IN MILLENIUM VI. By Curme Gray. Shasta Publishers, Chicago, 1952. 249 *pages,* $3.00

I AM sure that this must be, as it says on the jacket, "the intense realization of an original literary form," but neither I, nor Mac, my bookie friend down the street, can figure out what that form is.

For my puny intellect, this book has nothing to offer. Theoretically, it deals with a matriarchy 6,000 years from now, but it does so in such a fashion that people, plot, place or purpose do not come through in any intelligible way. One gathers that some murders are committed; that this has not happened for hundreds of years; and that the motive is a desire for power. But that is the one really understandable thing in the book.

The style is opaque, the characters wooden, posturing empty and unreal as the Egyptian figures that decorate the very handsome jacket of the novel. The "science" is a gibberish of names —"flivvy-dizzies," "telement," "levelators," "contrapellers," "remitters," not one of which has any lucid meaning.

When I finally laid the book down, I had a dissociated feeling as if I had spent considerable time in the company of a person who had something to say and couldn't express it. It was an uncomfortable feeling.

DEPARTMENT *for Keeping the Record Straight.* Some unscrupulous BEM, in a mood of sheer malicious rage, whispered that boner in my ear about Robert Heinlein's getting the phrase "the Green Hills of Earth" from Fredric Brown's fine short story, "Something Green." Actually, "Something Green" was first published in *Space on My Hands* (reviewed May 1952 GALAXY), "The Green Hills of Earth" first published by Heinlein in the *Saturday Evening Post* in 1947. Actually the phrase comes from a story by C. L. Moore (Mrs. Henry Kuttner), and credit is given her in the book by Heinlein which used the phrase as a title.

I hope everybody feels better now that I have walloped my buzzum in public. I *still* feel like a dope. (Memo from the Editor: Who are you not to make an occasional mistake?)

—GROFF CONKLIN

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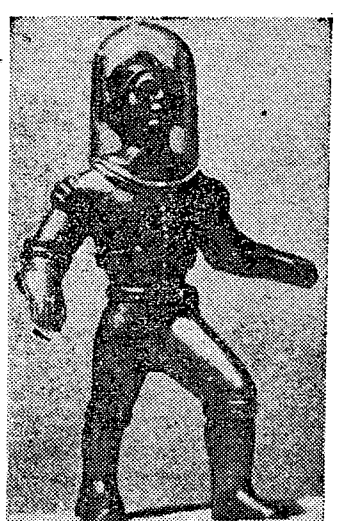

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SYNOPSIS

Mitchell Courtenay, the narrator of this story, had three grave problems—his wife Kathy, who refused to finalize their conditional marriage; the planet Venus; and the Conservationists, commonly known as "Connies," an outlawed organization.

Kathy, a brilliant surgeon, disliked Courtenay's ideals. As a young star class copysmith in Fowler Schocken Associates, the largest advertising agency on Earth, Courtenay was dedicated to the highest principle of this completely free enterprise society: Sales. Only through sales, he held, could the economy expand indefinitely. Kathy bitterly wanted to know why it had to, a question that, to Courtenay, was little short of commercial heresy. Added to this marital strain was his

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jealousy of Kathy's liking for Jack O'Shea, the midget space pilot who was the only person to reach Venus thus far.

Surprisingly, Courtenay had been selected by Fowler Schocken to head the Venus Project, a contract granted by the Incorporated United States of America to develop and exploit Earth's sister planet. He had expected Matt Runstead, an older executive in

Illustrated by DON SIBLEY

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the Company, to be angry and jealous, for Runstead had higher seniority and should logically have been chosen to handle the account. But Runstead evidently was going further than the usual routine attempts to discredit Courtenay by lying, cajoling, bribing his staff, spying on his plans—Runstead seemed to be actively sabotaging the project!

That, however, could have been the work of the Connies, who fought savagely for the conservation of natural resources, and might be expected to combat the use of enormous amounts of metals and fuels needed to colonize and exploit Venus.

As proof of that, there were the two attempts on Courtenay's life—once when he was in Washington to interview O'Shea, the tiny space pilot, and a 'copter cargo nacelle almost killed him; another when a gunman in a passenger 'copter tried to shoot him through the window of his apartment. The possibility of a commercial feud was ruled out by Fowler Schocken when Courtenay questioned him about it; there would have been court hearings, counter-claims, perhaps even injunctions, before they were notified of a feud. Obviously, no entrepeneur would be guilty of the high commercial crime of murder without notification, so it must have been the Connies.

But then something even more disturbing occurred. Testing consumer reaction had always been the basis of successful advertising, and Courtenay had picked Cal-Mex to sample attitudes toward colonizing, supporting the gigantic project, buying Venusian products, and other such essentials . . . but Runstead's staff sent in faked information!

Enraged, Courtenay fired the entire staff there and went to the South Pole, where Runstead was "on vacation," to confront him with his treachery.

Courtenay found him on the slope of Starrzelius Glacier. But Runstead was ready . . . he cut Courtenay down with a slash of skis across the Polar helmet, left him dazed, freezing, beyond hope of rescue. As the fierce cold reached into Courtenay's unheated suit, he had only two thoughts. One was of Kathy. The other was of death.

When Courtenay awoke, he was in the steerage of a labor-freighter rocketing through the sky . . . bound to a long contract in the Chlorella plantations, imprisoned in a false identity that someone had contrived for him. There was no way of buying his freedom.

As far as the world was concerned, he had died in an accident in Antarctica.

Approached by the Connies to

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join their detested organization, Courtenay (alias "Groby") used them to get back to New York and Schocken Tower. With the help of his loyal secretary, he managed to get to the Moon, where he made contact with a Connie cell. It was not easy—it cost him the life of his secretary, poisoned mysteriously on the Earth-Moon ship—but there was no other method of reaching Fowler Schocken, who was on the Moon to push the Venus Project.

To escape detection by the police guards, Courtenay had to take refuge with a Connie, who called in the leader of the group. The leader turned out to be Courtenay's own wife, Kathy!

XIII

"MITCH!" Kathy said dazedly. "My God, Mitch!" She laughed, with a note of hysteria. "You wouldn't wait, would you?"

The astrologer took the gun out of his pocket. "Is there—"

"No, Warren. It's all right. You can leave us alone. Please."

He left. Kathy dropped into a chair, trembling. I couldn't move. My wife—a king-pin Connie! I had thought I'd known her; I'd been wrong. She had lied to me continuously and I had never known it.

I had loved a lie and not a woman at all.

"Shocked?" she asked. "You, a star class copysmith, consorting with a Connie? Afraid it'll get out and do you no good business-wise?" She forced a mocking smile that broke down as I looked at her. "Damn it," she flared, "all I ever asked from you after I came to my senses was to get out of my life and stay out. The biggest mistake I ever made was keeping Taunton from killing you."

"You had Runstead shanghai me?"

"Like a fool. What in God's name are you doing here? Why can't you leave me alone?"

Kathy a Connie. Runstead a Connie. Deciding what was best for poor Mitch and doing it. Taunton deciding what was best for poor Mitch and doing it. Moving me this way and that.

I picked her up and slapped her. The staring intensity left her eyes and she looked merely surprised.

"Get what's-his-name in here," I said.

"You can't order me—"

"You!" I yelled. "The witch-doctor!"

He came running, right into my fist. Kathy was on my back, a clawing wildcat, as I went through his pockets. I found the gun—a wicked .25 UHV machine

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pistol—and shoved her to the floor. She looked up at me, mechanically rubbing a bruised hip. "You're a mean idiot," she said wonderingly.

"Not idiot," I said. "Does Fowler Schocken know you're on the Moon?"

"No," she said, rubbing her thumb and forefinger together.

"You're lying. I told you that gesture gives you away."

"My little lie-detector," she said jeeringly. "My little fire-eating copysmith—"

"Level with me or you get this thing across the face."

"You mean it!" She put her hand to her face slowly, looking at the gun.

"I'm glad that's settled. Does Fowler Schocken know you're on the Moon?"

"Not exactly." She was still watching the gun. "He did advise me to make the trip—to help me get over my bereavement."

"Call him. Get him here."

She didn't say anything or move to the phone.

"Listen," I said. "This is Groby talking. Groby's been slugged, knifed, robbed and kidnaped. He saw the only friend he had poisoned a few hours ago. He's been played with by a lady sadist who knew her anatomy lessons. He killed her for it and he was glad of it. He's so deep in hock to Chlorella that he'll never get out. He's wanted for femicide and breach of contract. The woman he thought he was in love with turned out to be a lying fanatic, a Connie bitch. Groby has nothing to lose. I can put a burst through the dome up there and we'll all suck space. I can walk out into the street, give myself up and tell exactly what I know. They won't believe me, but they'll investigate to make sure, and sooner or later they'll get corroboration—after I've been brain-burned, which doesn't matter. I've got nothing to lose."

"And," she asked flatly, "what have you got to gain?"

"Stop stalling. Call Schocken."

"Not without another try, Mitch. One word hurt—'fanatic.' There were two reasons why I begged Runstead to shanghai you: I wanted you out of the way of Taunton's killers, and I wanted you to get a taste of the consumer's life. I thought I'd be able to talk sense to you after we brought you back to life, and we'd be able to work together on the only job worth doing. So it didn't work. That damned brain of yours—so good and so warped. All you want is to be star class again and eat and drink and sleep a little better than anybody else. Well, I tried.

"Go ahead and do whatever you think you have to do. It's not going to hurt worse than the

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nights we used to spend screaming at each other. Or the times I was out on Connie business and couldn't tell you and had to watch you being jealous. Or shipping you to Chlorella to try to make you a whole sane man in spite of what copysmithing's done to you. Or never being able to love you all the way, never being able to give myself to you entirely, mind or body, because there was this secret. Pistol-whipping's a joke compared to the way I've been hurt."

There was a pause that seemed to go on forever.

"Call Schocken," I said unsteadily. "Tell him to come here. Then get out and take the stargazer with you. I—I don't know what I'm going to tell Schocken. But I'm going to give you and your friends time to change headquarters and hailing signs and the rest of your insane rigmarole. Call Schocken and get out of here. I don't want to see you again."

I couldn't read the look on her face as she picked up the phone and punched a number.

"Mr. Schocken's sec^3, please," she said. "This is Dr. Nevin—widow of Mr. Courtenay. You'll find me on the through list. Mr. Schocken's sec^2, please. . . . This is Dr. Nevin, Mr. Courtenay's widow. May I speak to Mr. Schocken's secretary? I'm listed . . . Hello, Miss Grice; this is Dr. Nevin. May I speak to Mr. Schocken?" She turned to me. "I'll have to wait a few moments." They passed in silence. "Hello, Mr. Schocken. I wonder if you could come and see me about a matter of importance, business *and* personal . . . The sooner the better, I'm afraid . . . Shopping One, off Receiving—Dr. Astron's . . . No, nothing like that. It's just a convenient meeting place. Thank you very much, Mr. Schocken."

I wrenched the phone from her and heard Fowler Schocken's voice say: "Quite all right, my dear. The mystery is intriguing. Good-by." *Click*. The voice was unmistakable. It brought back memories of Board mornings with their brilliance of ingenuity, hard and satisfying hours of work climaxed with a "Well done!" I was almost home.

Silently and efficiently, Kathy was shouldering the stargazer's limp body. Without a word, she walked from the observatory. A door opened and closed.

The hell with her . . .

IT was minutes before there was a jovial halloo from Fowler Schocken: "Kathy! Anybody home?"

"In here," I called.

Two of our Brinks men and Fowler Schocken came in. His

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face turned a mottled purple. "Where's—" he began. And then: "You looked like — *you are! Mitch!*" He grabbed me and waltzed me hilariously around the circular room while the guards dropped their jaws. "What kind of trick was that to play on an old man? What's the story, boy? Where's Kathy?" He stopped, puffing even under Moon-weight.

"I've been doing some undercover work," I said. "I'm afraid I've got myself into some trouble. Would you call for more guards? We may have to stand off Luna City Inc.'s protection men." Our Brinks guards grinned happily at the thought.

"Sure, Mitch. Get it done," he said to the sergeant, who went eagerly to the phone. "Now what's all this about?"

"For the present," I said, "let's say it's been a field trip that went sour. Let's say I downgraded myself temporarily and voluntarily to assess the Venus project sentiment among the consumers—and I got stuck. Fowler, please don't push me for any more details. I'm in a bad way. Hungry, tired, scared, dirty."

"All right, Mitch. You know my policy—find a good horse, give him his head and back him to the limit. You've never let me down, and God knows I'm glad to see you around again. Venus Section can use you. Nothing's going right. The indices are down to 3.77 composite for North America when they should be 4.0 and rising. And turnover? Enormous! I'm here recruiting; you know: a little raid on Luna City Inc., Moon Mines and the other outfits for some space-seasoned executives."

It was good to be home. "Who's heading it up?" I asked.

"I am. We rotated a few Board men through the spot and there wasn't any pickup. In spite of my other jobs, I had to take over Venus Section direct. *Am* I glad to see *you*!"

"Runstead?"

"He's vice-ing for me, poor man. What's this jam you're in with the guards? Where's Kathy?"

"I'm wanted for femicide and contract breach on Earth. Here I'm a suspicious character without clearance. Also I resisted arrest, clouted a guard and damaged Luna City property."

He looked grave. "You know, I don't like the sound of CB," he said. "I assume there was a flaw in the contract?"

"Several," I assured him.

He brightened. "Then we'll pay off the fines on the rest of the stuff and fight the CB clear up to the Chamber of Commerce if we have to. What firm?"

"Chlorella Costa Rica."

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"Hmm. Middling-sized, but solid. Excellent people, all of them. A pleasure to do business with."

Not from the bottom, I thought, but said nothing.

"I'm sure they'll be reasonable. If they aren't, I have a majority of the C of C in my pocket anyway. I ought to get *something* for my retainers, eh?" He dug me slyly in the ribs. His relief at getting Venus Section off his neck was overwhelming.

A dozen of our Brinks boys churned in.

"That should do it," Fowler Schocken beamed. "Lieutenant, the Luna City Inc. protection people may try to take Mr. Courtenay here away from us. We don't want that to happen, do we?"

"No, sir," said the lieutenant, dead-pan.

"Then let's go."

"HEY, you!" a stray Burns patrolman bawled. We were in somewhat open order. Evidently he didn't realize that the Brinks men were my escort.

"Go play with your marbles, punchy," a sergeant told him.

He went pale, but beeped his alarm and went down in a tangle of fists and boots.

Burns patrolmen came bounding along the tunnel-like street in low-gravity strides. Faces appeared in doorways. Our detail's weapons-squad leader said, "Hup!" and his boys began to produce barrels, legs, belts of ammo and actions from their uniforms. Snap-snap-snap-snap-snap, and there were two machine guns mounted on the high tripod ready to rake both ends of the street. The Burns men braked grotesquely yards from us and stood unhappily swinging their nightsticks.

Our lieutenant called out: "What seems to be the trouble, gentlemen?"

A Burns man called back: "Is that man George Groby?"

"Are you George Groby?" the lieutenant asked me.

"No. I'm Mitchell Courtenay."

The weapons men full-cocked their guns at a signal from the squad leader. The two clicks echoed from the vaulting and the few last-ditch rubbernecks hanging from the doors vanished.

"Oh," said the Burns man. "That's all right, then. You can go ahead." He turned on the rest of the patrolmen. "What the hell are you dummies waiting for? Didn't you hear me?"

They beat it, and we moved on down Commercial One, with the weapons men cradling their guns. The Fowler Schocken Associates Luna City Branch was 75 Commercial One, and we went in whistling. The weapons men

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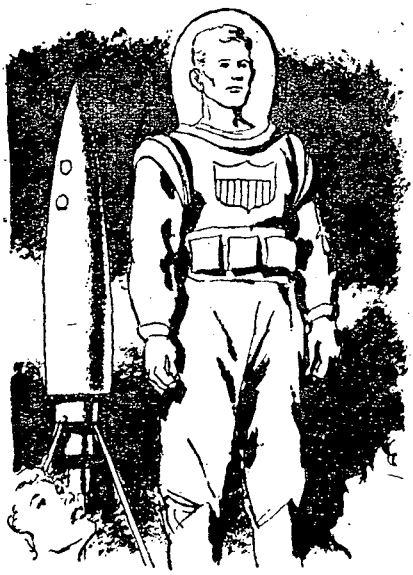

mounted their guns in the lobby.

It was a fantastic performance. I had never seen its like. Fowler Schocken explained it as he led me down into the heart of the agency. "It's frontier stuff, Mitch. Something you've got to get into your copy. 'The Equalizer' is what they call it. A man's rank doesn't mean much up here. A well-drilled weapons squad is the law topside of the stratosphere. It's getting back to the elemental things of life, where a man's a man no matter how high his Social Security number."

We passed a door. "O'Shea's room," he said. "He isn't in yet, of course. The little man's out gathering rosebuds while he may —and the time isn't going to be long. The only Venus roundtripper. We'll lick that, won't we, Mitch?"

He showed me into a cubicle and lowered the bed with his own hands. "Cork off with these," he said, producing a sheaf of notes from his breast pocket. "Just some rough jottings for you to go over. I'll send in a guard with food and Coffiest. A good hour or two of work and then the sound sleep of the just, eh?"

"Yes, Mr. Schocken."

He beamed at me and left, drawing the curtain. I stared glazedly at the rough jottings. "Six-color doubletrux. Downhold unsuccessful previous flights. Cite Learoyd 1959, Holden 1961 (?), McGill 2002 et al heroic pioneers supreme sacrfce etc etc. *No* mention Myers-White flopperoo 2010 acct visibly exploded bfr passng Moon orbit. Try get M-W taken out of newssheet files & history bks? Get cost estimate. Search archives for pix L H & McG. Shd be blond brunet & redhead. Ships in bacgrnd. Looming. Panting woman, but heroic pioneers dedicated look in eye not interestd. Piquant bcs unavlbl . . ."

There was a pencil and copy-paper in the cubicle. I began to write painfully: "We were ordinary guys. We liked the Earth and the good things it gave us. The morning tang of Coffiest . . .

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the first drag on a Starr . . . the good feel of a sharp new Verily pinstripe suit . . . a warm smile from a girl in a bright spring dress—but they weren't enough. There were far places we had to see, things we had to know.

"The little guy's Learoyd, 1959. I'm Holden, 1961. The redhead with the shoulders is McGill, 2002. Yes, we're dead. But we saw the far places and we learned what we had to learn before we died. The longhair astronomers could only guess about Venus. Poison gas, they said. Winds so hot and so strong they'd pick you up and throw you away in cinders. But they weren't sure. What do you do when you aren't sure? You go and see."

A guard came in with sandwiches and Coffiest. I munched and gulped and wrote with the other hand.

"We had good ships for those days. They packed us and enough fuel to get us there. What they didn't have was enough fuel to get us back. But don't pity us; we had to know. There was always the chance that the longhairs were wrong, that we'd be able to get out, breathe clean air, swim in cool water—and then somehow make enough fuel to bring the good news back. No, it didn't work out that way. It proved that the longhairs knew their stuff.

"Learoyd didn't wait to starve in his crate; he opened the hatch and breathed poison after writing up his log. My crate was lighter. The wind picked it up and broke it—and me with it. McGill had extra rations and a heavier ship. He sat and wrote for a week and then—well, it was pretty certain after two no-returns. He'd taken cyanide with him. But don't pity us. We went there and we saw it and, in a way, we sent back the news by not coming back ourselves.

"Now you folks know what to do and how to do it. You know the longhairs weren't guessing. Venus is a mean lady and you've got to take the stuff and the know-how to tame her. She'll treat you right when you do. When you find us and our crates, don't pity us. We did it for you. We knew you wouldn't let us down."

I was home again.

XIV

"PLEASE, Fowler," I said. "Tomorrow. Not today."

He gave me a steady look. "I'll go along, Mitch. I've never been a back-seat driver yet." He displayed one of the abilities that made him boss-man by wiping clean out of his mind the burning curiosity about where I had been and what I had been doing.

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"That's good copy," he said, slapping my work of the previous night on his desk. "Clear it with O'Shea, won't you? He can give it some extra see-taste-smell-hear-feel if anybody can. And pack for return aboard the *Vilfredo Pareto* — I forgot, you haven't got anything to pack. Here's some scratch; shop when you get a chance. Take a few of the boys with you, of course. The Equalizer, remember?" He twinkled at me.

I went to find O'Shea curled up like a cat in the middle of his full-sized bunk in the cubicle next to mine. The little man looked ravaged when he rolled over and stared blearily at me.

"Mitch," he said thickly. "'Nother goddam nightmare." He closed his bloodshot eyes. A thread of saliva lay along his miniature chin—puffy now, no longer perfectly chiseled.

"Wake up, Jack."

He jerked upright and held his small head. "I'm dying," he said faintly. "My deathbed advice is this: don't ever be a hero. Get me something, will you?"

I went to the kitchen and punched Coffiest, Thiamax and a slice of Bredd. Halfway out, I returned, went to the bar and punched two ounces of bourbon.

O'Shea looked at the tray and hiccoughed. "What the hell's that stuff?" he asked, referring to the Coffiest, Thiamax and Bredd. He shot down the bourbon and shuddered.

"Long time no see, Jack," I said.

He groaned. "Why do cliches add that extra something to a hangover?" He tried to stand up to his full height of thirty-five inches and collapsed back onto the cot, his legs dangling. "I'm living up to my reputation and it's killing me. Ooh, that tourist gal from Nova Scotia! It's springtime, isn't it? Do you think that explains anything?"

"It's late fall."

"Maybe she doesn't have a calendar. Pass me that Coffiest." No "please" and no "thank you." Just a cool assumption that the world was his for the asking. He had changed.

"Think you can do some work this morning?" I asked, my voice stiff.

"I might," he said indifferently. "This is Schocken's party, after all. Say, what the hell ever became of you?"

"I've been investigating."

"Seen Kathy? That's a wonderful girl you have there, Mitch." His smile might have been reminiscent. All I was sure of was that I didn't like it.

He choked down his Coffiest and said, carefully setting it down: "What's that work you mentioned?"

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I showed him my copy. He gulped the Thiamax and began to steady on his course as he read.

"You got it all effed up," he said at last, scornfully. "I don't know Learoyd, Holden and McGill from so many holes in the ground, but like hell they were selfless explorers. You don't get *pulled* to Venus. You get *pushed*."

"We're trying to convince people that they got pulled. What we want from you is sense-impressions to sprinkle the copy with. Just talking off the front of your face, how do you resonate to it?"

"With nausea," he said, bored. "Would you reserve me a shower, Mitch? Ten minutes fresh, 100 degrees. Damn the cost. You, too, can be a celebrity. All you have to do is be as lucky as I am." He swung his short legs over the edge of the cot and contemplated his toes, six inches clear of the floor. "I'm getting it while the getting's good. And *am* I getting it good. She must have been part Eskimo."

"What about my copy?"

"See my reports. What about my shower?"

"See your valet," I said, and went out, boiling. In my own cubicle I sweated sense-impressions into the copy for a couple of hours and then picked up a guard squad to go shopping. There were no brushes with the Burns patrolmen. I noticed that Warren Astron's shopfront now sported a chaste sign:

Dr. Astron Regrets That
Urgent Business
Has Recalled Him to Earth on
Short Notice

I asked one of our boys: "Has the *Ricardo* left?"

"Couple hours ago, Mr. Courtenay. Next departure's the *Pareto,* tomorrow."

I could talk.

SO I told Fowler Schocken the whole story.

And Fowler Schocken didn't believe a word of it.

He was nice enough and he tried not to hurt my feelings. "Nobody's blaming you, Mitch," he said kindly. "You've been through a great strain. It happens to us all, this struggle with reality. Don't feel you're alone, my boy. We'll see this thing through. There are times when anybody needs help. My analyst—"

I'm afraid I yelled at him.

"Now, now," he said, still kind and understanding. "Laymen shouldn't dabble in these things, but I think I know a thing or two about it and can discuss it objectively. Let me try to explain—"

"Explain *this*!" I yelled at him,

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thrusting my altered Social Security tattoo under his nose:

"If you wish," he said calmly. "Call it a holiday from reality. You've been on a psychological bender. You assumed a new identity, and you chose one as far-removed from your normal hard-working, immensely able self as possible. You chose the lazy, easy-going life of a scum-skimmer, drowsing in the tropic Sun—"

I knew then who was out of touch with reality.

"Your slanders against Taunton's are crystal-clear to a person with some grasp of our unconscious drives. I was pleased to hear you voice them. They meant that you're getting back to your real self. What is our problem—the central problem of the real Mitchell Courtenay, star class copysmith? Lick the opposition! Crush the competing firms! Destroy them! Veiled in symbols, obscured by ambivalent attitudes, the Taunton fantasy is nevertheless clear. Your imagined encounter with the girl 'Hedy' might be a textbook example!"

"Look at my jaw! See that hole? It still hurts!"

He just smiled and said: "Let's be glad you did nothing worse to yourself, Mitch. The id, you see—"

"What about Kathy? What about the complete data on the Connies I gave you? Grips, hailing signs, passwords, meeting places?"

"Mitch," he said earnestly, "as I say, I shouldn't be meddling, but they aren't real. Through sexual hostility, 'Groby' identified your wife with a hate-and-fear object, the Connies. And 'Groby' carefully arranged things so that your Connie data is uncheckable and therefore unassailable. 'Groby' arranged for you—the *real* you—to withhold the imaginary 'data' until the Connies would have had a chance to change all that. 'Groby' was acting in self-defense. Courtenay was coming back and 'Groby' felt himself being squeezed out. Very well, he arranged things so that he can make a comeback—"

"I'm not insane!"

"My analyst—"

"You've got to believe me!"

"These unconscious conflicts—"

"I tell you Taunton has killers!"

"Do you know what convinced me, Mitch?"

"What?" I asked bitterly.

"The fantasy of a Connie cell embedded in Chicken Little. The symbolism—well, it's quite unmistakable."

I gave up except on one point: "Do people still humor the insane, Mr. Schocken?"

"You're *not* insane, my boy.

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You need help. You'll get it."

"Will you humor me in one respect?"

"Of course."

"Guard yourself and me, too. Taunton has killers. All right, I think, or Groby thinks, or some damn body thinks that Taunton has killers. If you humor me to the extent of guarding yourself and me, I promise not to start swinging from the ceiling. I'll even go to your analyst."

"Fine," he smiled, humoring me.

Who could blame him? His own dreamworld was under attack by every word I had to say. He couldn't believe that Mitchell Courtenay, copysmith, was sitting there and telling him such frightful things.

They were hammer blows at him, but Fowler Schocken was nothing if not resilient. There was an explanation for everything and Sales could do no wrong. Therefore, Mitchell Courtenay, copysmith, was not sitting there telling him these things. It was Mitchell Courtenay's untamed id. I suppose I was lucky, at that. He could have decided I was an impostor trying to subvert him and handed me over to the Burns Detective Agency.

Some prehistoric research of my apprentice days recurred to me. I had found that, contrary to popular opinion, there had been no martyrs to science, *ever*. Roger Bacon had been comfortably imprisoned not because he had a fumbling, intuitive, mixed-up-with-mysticism notion of the scientific method, but because he had, from an incurably bad temper, violated a kind of non-aggression pact between the Dominicans and Franciscans. People hadn't cared about his truths. Copernicus hadn't been hailed before the Inquisition because he said the Earth moved around the Sun; it was because he had arrogantly and brutally denounced earlier astronomers who had done a good job with their limited instruments and math. People hadn't cared about *his* truths.

If I persisted, Fowler Shocken might regretfully put me away as a psychotic, but he didn't care about my truths.

Truths? Truths? What truths?

The interests of producers and consumers are not always identical.

Most of the world is not always happy.

Workmen don't always automatically find the jobs they do best.

Entrepreneurs don't always play a hard, fair game by the rules.

The Connies are sane, intelligent and well-organized.

In a free association fashion

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that would have delighted Fowler Shocken and his analyst, I said to myself: "You know, Mitch, you're talking like a Connie."

I answered: "Why, so I am. That's terrible."

"Well," I replied, "I don't know about that. Maybe . . ."

"Yeah," I said thoughtfully. "Maybe . . ."

It's an axiom of my trade that things are invisible except against a contrasting background. Like, for instance, the opinions and attitudes of Fowler Schocken.

Humor me, Fowler, I thought. *Keep me guarded. I don't want to run into an ambivalent fantasy like Hedy again. The symbolism may have been obvious, but she hurt me bad with her symbolic little needle.*

XV

RUNSTEAD wasn't there when our little procession arrived in executives' country of the Schocken Tower. There were Fowler, me, Jack O'Shea, secretaries—and the weapons squads I had demanded.

Runstead's secretary said he was down the hall, and we waited. I suggested that he wasn't coming back. After an hour, word got to us that a body had been found smashed flat on the first setback of the Tower, hundreds of feet below. It was very difficult to identify.

The secretary wept hysterically and opened Runstead's desk and safe. Eventually we found a diary covering the past few months of Runstead's life. Interspersed with details of his work, his amours, memos for future campaigns, notes on good out-of-the-way restaurants and the like were entries that said:

"He was here again last night. He told me to try to hit harder on the shock-appeal, says the Starrzelius campaign needed guts. He scares *hell* out of me. Understand he used to scare everybody in the old days when he was alive . . . GWH again last night . . . *Saw him by daylight* for first time! Jumped and yelled, but nobody noticed. Wish he'd go away . . . He said I'm no good, disgrace to profession . . ."

After a while we realized that "he" was the ghost of George Washington Hill, father of our profession, founder of the singing commercial, shock-value, irritation campaigns.

"Poor fellow," said Schocken, white-faced. "Poor, poor fellow. If only I'd known. If only he'd come to me in time."

The last entry said raggedly: "I *know* I'm no good. Unworthy of the profession. They *all* know it. Can see it in their faces. *Everybody* knows it. He told them. *Damn him!*"

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"Poor, poor fellow," said Schocken, almost sobbing. He turned to me and said: "You see? The strains of our profession . . ."

Sure I saw. A prefabricated diary and an unidentifiable splash of protoplasm. It might have been 180 pounds of Chicken Little down there on the first setback. But I would have been wasting my breath. I nodded soberly, humoring him.

I was restored to my job at the top of the Venus Section. I saw Fowler's analyst daily. And I kept my armed guard. In tearful sessions, Fowler would say: "You must relinquish this symbol. It's all that stands between you and reality now, Mitch. Dr. Lawder tells me—"

Dr. Lawder told Fowler Schocken what I told Dr. Lawder. And that was the slow progress of my "integration." I hired a medical student to work out traumas for me backward from the assumption that my time as a consumer had been a psychotic fugue, and he came up with some honeys. A few I had to veto as not quite consistent with my dignity, but there were enough left to make Dr. Lawder drop his pencil every once in a while. One by one we dug them up, and I have never been so bored in my life.

But I would not surrender my insistence that my life and Fowler Schocken's were in danger.

Fowler and I got closer and closer—he thought he had made a convert. I was ashamed to string him along. He was being very good to me. But it was a matter of life or death. The rest was sideshow.

The day came when Fowler Schocken said gently: "Mitch, I'm afraid heroic measures are in order. I don't ask you to dispense with this barrier of yours against reality. But *I* am going to dismiss *my* guards."

"You'll be killed, Fowler!"

"I'm not afraid." Argument was useless. After a bit of it, acting on sound psychological principles, he told the lieutenant of his office squad: "I won't be needing you any more. Please report with your men to Plant Security Pool for reassignment. Thank you for your loyalty and attention to detail during these weeks."

The lieutenant saluted, but he and his men looked sick. They were going from an easy job in executives' country to lobby patrol or night detail or mail guard or messenger service at ungodly hours.

That night Fowler Schocken was garrotted on his way home by somebody who had slugged his chauffeur and substituted himself at the bicycle pedals of the custom-built Cadillac. The killer,

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apparently a near-moron, resisted arrest and was clubbed to death, giggling. His tattoo had been burned off. He was unidentifiable.

YOU can imagine how much work was done in the office the next day. There was a memorial Board meeting held and resolutions passed saying a great profession never would forget and so on. Messages of condolence were sent by other agencies, including Taunton's. I got some odd looks when I crumpled the Taunton message in my fist and used some very bad language. Commercial rivalry, after all, goes just so far. We're all gentlemen; a hard, clean fight and may the best agency win.

But no Board member paid it much mind. They were all thinking of one thing: the Schocken block of voting shares.

Fowler Schocken Associates was capitalized at 7 x 10^{12} megabux, voting shares par at M2 0.1, giving us 7 x 10^{13} shares. Of these, 3.5 x 10^{13} + 1 shares were purchasable only by employees holding AAAA labor contracts or better—roughly speaking, star class. The remaining shares by SEC order had been sold on the open market. As customary, Fowler Schocken himself had, through dummies, snapped these up at the obscure stock exchanges where they had been put on sale.

In his own name he held a modest .75 x 10^{13} shares and distributed the rest with a lavish hand. I myself, relatively junior in spite of holding perhaps the number-two job in the organization, had accumulated via bonuses and incentive pay only about .7 x 10^{12} shares.

Top man around the Board table probably was Harvey Bruner. He was Schocken's oldest associate and had corralled .83 x 10^{13} shares over the years. (Nominally this gave him the bulge on Fowler—but he knew, of course, that in a challenge those other 3.5 x 10^{13} +1 shares would come rolling in on carloads of proxies, all backing Fowler with mysterious unanimity. Besides, he was loyal.) He seemed to think he was heir-apparent, and some of the more naive Research and Development people were already sucking up to him. He was an utterly uncreative, utterly honest wheelhorse. Under his heavy hand, the delicate mechanism that was Fowler Schocken Associates would disintegrate in a year.

If I were gambling, I would have given odds on Sillery, the Media chief, for copping the Schocken bloc, and on down in descending order to myself, on whom I would have taken odds—

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long, long odds. That obviously was the way most of them felt, except the infatuated Bruner and a few dopes. You could tell. Sillery was surrounded by a respectful little court that doubtless remembered such remarks from Fowler as: "Media, gentlemen, is basic-basic!" and: "Media for brains, copysmiths for talent!" I was practically a leper at the end of the table, with my guards silently eying the polite battle. Sillery glanced at them once, and I could read him like a book: "That's been going on long enough; we'll knock off that eccentric first thing."

What we had been waiting for came about at last. "The gentlemen from the American Arbitration Association, Probate Section, are here, gentlemen."

They were of the funeral type, according to tradition. Through case-hardening or deficient sense of humor, they refrained from laughing while Sillery gave them a measured little speech of welcome about their sad duty and how we wished we could meet them under happier circumstances and so on.

They read the will in a rapid mumble and passed copies around. The part I read first said: "To my dear friend and associate Mitchell Courtenay, I bequeath and devise my ivory-inlaid oak finger-ring (inventory number 56,987) and my seventy-five shares of Sponsors' Stock in the Institute for the Diffusion of Psychoanalytic Knowledge, a New York non-profit corporation, with the injunction that he devote his leisure hours to active participation in this organization and the furtherance of its noble aim."

Well, Mitch, I told myself, *you're through.* I tossed the copy on the table and leaned back to take a swift inventory of my liquid assets.

"Hard lines, Mr. Courtenay," a brave and sympathetic Research man I hardly knew told me. "Mr. Sillery seems pleased with himself."

I glanced at the bequest to Sillery — paragraph one. Sure enough, he got Fowler's personal shares and huge chunks of stock in Managerial Investment Syndicate, Underwriters Holding Corporation and a couple of others.

The Research man studied my copy of the will. "If you don't mind my saying so, Mr. Courtenay," he told me, "the old man could have treated you better."

I seemed to hear Fowler chuckling nearby, and sat bolt erect. "Why, the old so-and-so!" I gasped. It fitted like lock and key, with his bizarre sense of humor to oil the movement.

Sillery was clearing his throat and an instant of silence de-

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scended on the Board room. "It's a trifle crowded here, gentlemen. I move that all persons other than Board members be asked to leave—"

I got up and said: "I'll save you the trouble. Come on, boys. Sillery, I may be back."

THE Institute for the Diffusion of Psychoanalytic Knowledge, a New York non-profit corporation, turned out to be a shabby three-room suite downtown in Yonkers. It was like something out of Dickens. There was a weird old gal in the outer office pecking away at a typewriter. A sagging rack held printed pamphlets with fly-specks on them.

"I'm from Fowler Schocken Associates," I told her.

She jumped. "Excuse me, sir! I didn't notice you. How is Mr. Schocken?"

I told her how he was, and she began to blubber. He had been such a *good* man, giving so *generously* for the Cause. What on Earth would she and her poor brother ever do now?

"All may not be lost," I told her. "Who's in charge here?"

She sniffled that her brother was in the inner office. "Please break it to him gently, Mr. Courtenay. He's so delicate and sensitive—"

I said I would, and walked in. Brother was snoring-drunk, flopped over his desk. I joggled him awake and he looked at me with a bleary and cynical eye. "Wash-awan?"

"I'm from Fowler Schocken Associates. I want to look at your books."

He shook his head emphatically. "Nossir. Only the old man himself gets to see the books."

"He's dead," I told him. "Here's the will." I showed him the paragraph and my identification.

"Well," he said, sobering fast, "the joy-ride's over. Or do you keep us going? You see what it says there, Mr. Courtenay? He enjoins on you—"

"I see it," I told him. "The books, please."

He got them out of a surprising vault behind a plain door.

Three hours of labor over them showed me that the Institute was in existence solely for holding and voting 56 per cent of the stock of an outfit called General Phosphate Reduction Corporation of Newark according to the whims of Fowler Schocken.

I went out into the corridor and said to my guards: "Come on, boys. Newark next."

I won't bore you with the details. It was single-track for three stages and then it split. One of the tracks ended two stages later in the Frankfort Used

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Machine Tool Brokerage Company, which voted 32 per cent of the Fowler Schocken Associates "public sale" stock. The other track forked again one stage later and wound up eventually in United Concessions Corp. and Waukegan College of Dentistry and Orthodontia, which voted the remainder.

Two weeks later, on Board morning, I walked into the Board room with my guards.

Sillery was presiding. He looked haggard and worn, as though he'd been up all night every night for the past couple of weeks looking for something.

"Courtenay!" he snarled. "I thought you understood that you were to leave your regiment outside!"

I nodded to honest, dumb old Harvey Bruner, whom I'd let in on it. Loyal to Schocken, loyal to me, he bleated: "Mr. Chairman, I move that members be permitted to admit company plant-protection personnel assigned to them in such number as they think necessary for their bodily protection."

"Second the motion, Mr. Chairman," I said. "Bring them in, boys, will you?" My guards, grinning, began to lug in transfer cases full of proxies to me.

Eyes popped and jaws dropped as the pile mounted. It took a long time for them to be counted and authenticated. The final vote stood: For, 5.73×10^{13}; Against, 1.27×10^{13}. All the Against votes were Sillery's and Sillery's alone. There were no abstentions. The others jumped to my side like cats on a griddle.

Loyal old Harve moved that chairmanship of the meeting be transferred to me, and it was carried unanimously. He then moved that Sillery be pensioned off, his shares of voting stock to be purchased at par by the firm and deposited in the bonus fund. Carried unanimously.

Then—a slash of the whip, just to remind them—he moved that one Thomas Heatherby, a junior Art man who had sucked up outrageously to Sillery, be downgraded from Board level and deprived without compensation of his small bloc of voting shares. Carried unanimously. Heatherby didn't even dare scream about it. Half a loaf is better than none, he may have said to himself, choking down his anger.

It was done. I was master of Fowler Schocken Associates. And I had learned to despise everything for which it stood.

XVI

"FLASH, Mr. Courtenay," said my secretary's voice. I hit the GA button.

"Connie arrested in Albany on

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neighbor's denunciation. Shall I line it up?"

"How many times do I have to give you standing orders? Of course you line it up!"

She quavered: "I'm sorry, Mr. Courtenay. I thought it was kind of far out—"

"Stop thinking, then. Arrange the transportation."

An hour later I was in the Upstate Mutual Protective Association's HQ. They were a local outfit that had a lot of contracts in the area, including Albany. Their board chairman himself met me and my guards at the elevator. "An honor," he burbled. "A great, great honor, Mr. Courtenay, and what may I do for you?"

"My secretary asked you not to get to work on your Connie suspect until I arrived. Did you?"

"Some of the employees may have roughed him up a little, informally, but he's in quite good shape."

"I want to see him."

He led the way, anxiously. He was hoping to get in a word that might grow into a cliency with Fowler Schocken Associates, but was afraid to speak up.

The suspect was sitting on a stool under the usual dazzler. He was a middle-aged white-collar consumer of thirty or so. He had a couple of bruises on his face.

"Turn that off," I ordered.

A square-faced foreman said: "But we always—" One of my guards, without wasting words, shoved him aside and switched off the dazzler.

"It's all right, Lombardo," the board chairman said hastily. "You're to cooperate with these gentlemen."

I sat down facing the suspect. "My name's Courtenay. What's yours?"

He looked at me with pupils that were beginning to expand again. "Fillmore," he said, precisely. "Alonzo Fillmore. Can you tell me what all this is about?"

"You're suspected of being a Connie."

There was a gasp from all the UMPA people in the room. I was violating jurisprudence by informing the accused of the nature of his crime.

I knew all about that and didn't give a damn.

"Completely ridiculous," Fillmore spat. "I'm a respectable married man with eight children and another coming along. Who on Earth told you people such nonsense?"

"Tell him who," I said to the board chairman.

He stared at me, goggle-eyed, unable to believe what he had heard. "Mr. Courtenay, with all respect, the entire body of law respecting the rights of informers—"

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"I'll take the responsibility. Do you want me to put it in writing?"

"No, no! Nothing like that! Please, Mr. Courtenay, suppose I tell the informer's name to you, understanding that you know the law and are a responsible person—and then I leave the room?"

"Any way you want to do it is all right with me."

He grinned placatingly, and whispered in my ear: "A Mrs. Worley. The two families share a room. Please be careful, Mr. Courtenay—"

"Thanks," I said. He gathered eyes like a hostess and nervously retreated with his employees.

"Well, Fillmore," I told the suspect, "he says it's Mrs. Worley." He began to swear, and I cut him off. "You know your goose is cooked, of course. Remember what William Vogt says on the subject?"

"Who?" he asked distractedly.

"Never mind. I have a lot of money. I can set up a generous pension for your family if you cooperate and admit you're a Connie."

He thought hard for a few moments and then said: "Sure I'm a Connie. What of it? I'm sunk, so why not say so?"

"If you're such a red-hot Connie, suppose you quote me some passages from Osborne."

He had obviously never heard of Fairfield Osborne, and slowly began to fake: "Well, there's the one that starts: 'A Connie's first duty, uh, is to, to prepare for a general uprising—' I don't remember the rest, but that's how it starts."

"Now how about your cell meetings? Who comes there?"

"I don't know them by name," he said more glibly. "We go by numbers. There's a dark-haired fellow, he's the boss—"

"Skip it," I told him. "You're no Connie. Don't worry about the pension. It goes through anyway."

"Thanks, mister," he said in a small, dry voice. "I'm not begging. But can you make it big enough so they can move out of the room with the Worleys? He's a wolf. His wife's jealous and sore about him. I guess that's why this happened. My wife told me and told me to inform on them before they informed on me, but I didn't listen. I didn't want to do anything like that. You shouldn't have to do anything like that just to get along—"

He was crying when we left.

I told the board chairman, hovering anxiously outside in the corridor: "I don't think he's a Connie."

I was president of Fowler Schocken Associates and he was only the board chairman of a jerkwater local police outfit, but *that* was too much. He drew himself up and said with dignity:

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"We administer justice, Mr. Courtenay. And a basic tenet of justice is: 'Better that one thousand innocents suffer unjustly than one guilty person be permitted to escape.'"

"I am aware of the maxim," I said. "Good day." I made a note to have the pension taken care of and left.

MY instrument corporal went *boing* as the crash-crash priority signal sounded in his ear, and handed me the phone. It was my secretary back in Schocken Tower, reporting another arrest, this one in Pile City Three, off Cape Cod.

We flew out to Pile City Three, which was rippling that day over a long, swelling sea. I hate the Pile Cities—as I've said, I suffer from motion sickness.

This Connie suspect had tried a smash-and-grab raid on a jewelry store, intending to snatch a trayful of oak and mahogany pins, leaving behind a lurid note about Connie vengeance and beware of the coming storm when the Connies take over and kill all the rich guys. It was intended to throw off suspicion.

He was very stupid.

It was a Burns-protected city, and I had a careful chat with their resident manager. He admitted first that most of their Connie arrests during the past month or so had been like that, and then admitted that *all* their Connie arrests for the past month or so had been like that. Formerly they had broken up authentic Connie cells at the rate of maybe one a week. He thought maybe it was a seasonal phenomenon.

From there I went back to New York, where another Connie had been picked up. I saw him and listened to him rant for a few minutes. He was posted on Connie theory and could quote Vogt and Osborne by the page. He also asserted that God had chosen him to wipe the wastrels from the face of Mother Earth. He said of course he was in the regular Connie organization, but he would die before he gave up any of its secrets. And I knew he certainly would, because he didn't know any. The Connies wouldn't have accepted anybody that unstable if they were down to three members with one sinking fast.

We went back to Schocken Tower at sunset and my guard changed. It had been a lousy day. As far as results were concerned, it was a carbon copy of all the days I had spent since I inherited the agency.

There was a meeting scheduled. I didn't want to go, but my conscience troubled me when I thought of the pride and confidence Fowler Schocken must have felt in me when he made me

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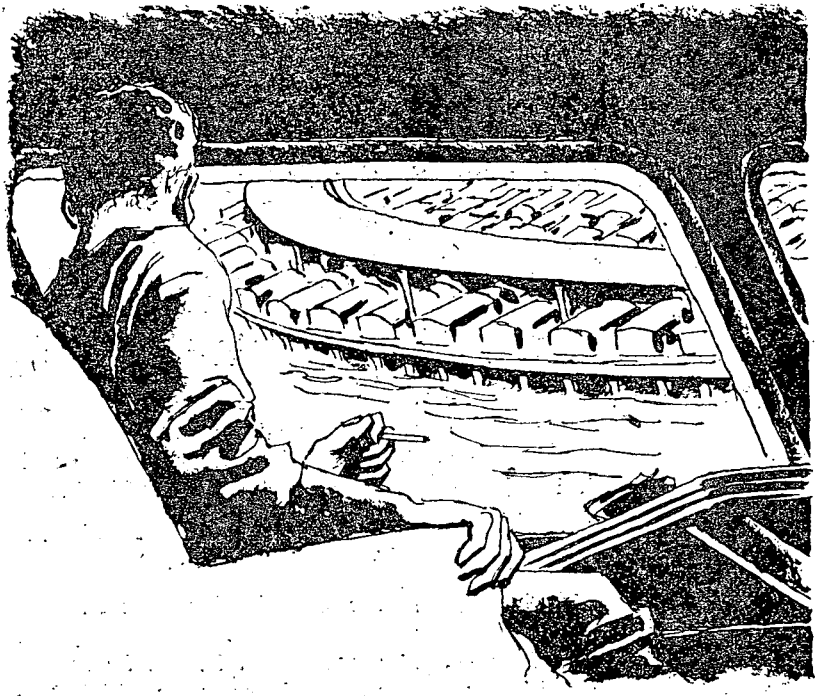

his heir. Before I dragged myself to the Board room, I checked with a special detail I had set up in the company's Business Espionage section.

"Nothing, sir," my man said. "No leads whatsoever on your—on Dr. Nevin. The tracer we had on the Chlorella personnel man petered out."

"Keep trying," I said. "If you need a bigger appropriation or more investigators, don't hesitate. Do me a real job."

He swore loyalty and hung up, probably thinking that the boss was a fool, mooning over a wife that was not even permanently married to him. What he made out of the others I had asked him to trace, I didn't know. They had vanished, each of my few contacts with the Connies in Costa Rica, the sewers of New York and on the Moon. Kathy had never come back to her apartment or the hospital; Warren Astron had never returned to his sucker-trap on Shopping One; my Chlorella cellmates had vanished into the

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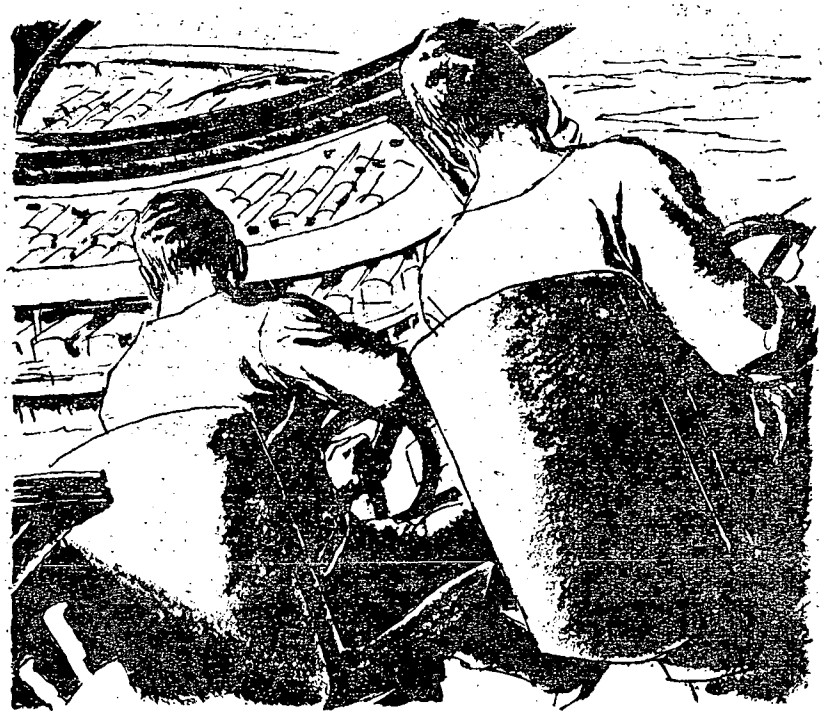

jungle—and so it went, all down the line.

BOARD meeting. "Sorry to be late, gentlemen. I'll dispense with opening remarks. Charlie, how's Research and Development doing on the Venus question?"

He got up. "Mr. Courtenay, gentlemen, in my humble way I think I can say that R. and D. is in there punching. Specifically, we've licked the greenhouse effect —*quantitatively*. Experiments *in vitro* have confirmed the predictions of our able Physical Chemistry and Thermodynamics section based on theory and math. A CO_2 blanket around Venus at 40,000 feet, approximately .05 feet thick, will be self-sustaining and self-regulating, and will moderate surface temperatures some five degrees a year, steadying at 80 to 85 degrees. We're exploring now the various ways this enormous volume of gas can be obtained and hurled at high velocity into the stratosphere.

"Considered broadly, we can

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find the CO_2, or manufacture it, or both. I say we should find it. Volcanic activity is present, but your typical superficial Venus eruption would seem to be liquid NH_4 compressed by gravity in crevices until it seeps to a weaker formation through faults and porous rock and then blows its top. We are certain, however, that deep drilling would tap considerable reservoirs of liquid CO_2—"

"How certain?" I asked.

"Quite certain, Mr. Courtenay. Phase-rule analysis of the O'Shea reports—"

I interrupted again. "Would you go to Venus on the strength of that certainty, other things being equal?"

"Absolutely," he said, a little offended. "Shall I go into the technical details?"

"No, thanks, Charlie. Continue as before."

"At present, we are wrapping up the greenhouse effect in two respects. We are preparing a maximum probability map of drilling sites and we are designing a standard machine for unattended drilling. My policy on the design is cheapness, self-power, and remote control. I trust this is satisfactory?"

"Very much so. Thank you, Charlie. One point, though. If the stuff is there and if it's abundant, we have a prospect of trouble. If it's *too* abundant and easy to get at, it might become feasible for Venus to export liquid CO_2 to Earth, which we definitely do *not* want. CO_2 is in good supply here, and no purpose would be served by underselling Earthside producers. Let's bear in mind always that Venus is going to pay its way with raw materials in short supply on Earth, and is not going to compete pricewise with the mother planet. Iron, yes. Nitrates, emphatically yes. We'll pay them a good enough price for such things to keep them buying Earthside products and enable them to give Earthside bankers, insurance companies and carrying trade their business.

"But never forget that Venus is there for us to exploit, and don't ever get it turned around. This is the time to head such mistakes off. I want you, Charlie, to get together with Auditing and determine whether tapping underground CO_2 pools will ever make it possible for Venus to deliver CO_2 F. O. B. New York at a competitive price. If it does, your present plans are *out*. You'll have to get your greenhouse effect blanketing gas by manufacturing it in a more expensive way."

"Right, Mr. Courtenay," Charlie said, scribbling busily.

"Does anybody else have anything special on the Venus pro-

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gram before we go on?"

Bernhard, our comptroller, stuck his hand up and I nodded.

"Question about Mr. O'Shea," he rumbled. "We're carrying him as a consultant at a very considerable fee. I've been asking around—I hope I haven't been going off-side, Mr. Courtenay, but it's my job—and I find that we've been getting no consultation whatever from him. Also, I should mention that he's drawn heavily in recent weeks on retainers not yet due. If we severed our connection with him at this time, he'd be owing us money. Also—well, this is trivial, but it gives you an idea. The girls in my department are complaining about him annoying them."

My eyebrows went up. "I think we should hang onto him for whatever prestige rubs off, Ben, though his vogue does seem to be passing. Give him an argument about further advances. And as for the girls, I thought they didn't complain when he made passes at them."

"Seen him lately?"

I realized I hadn't.

BACK in my office, I asked my night-shift secretary whether O'Shea was in the building and, if so, to send for him.

He came in smelling of liquor and complaining loudly. "Damn it, Mitch, enough is enough! I just stepped in to pick up one of the babes for the night and you grab me. Aren't you taking this consultation thing too seriously? You've got my name to use; what more do you want?"

He looked like a miniature of the fat, petulant, shabby Napoleon at Elba. But a moment after he had come in, I suddenly couldn't think of anything but Kathy. It took me a moment to figure it out.

"Well?" he demanded. "What are you staring at?"

The liquor covered it up some, but a little came through: *Menage a Deux,* the perfume I'd had created for Kathy and Kathy alone when we were in Paris, the stuff she loved and sometimes used too much of. I could hear her saying: "I can't help it, darling; it's so much nicer than formalin, and that's what I usually smell of after a day at the hospital . . ."

"Sorry, Jack," I said evenly. "I didn't know it was your howling night. It'll keep. Have fun."

He grimaced and left, almost waddling on his short legs.

I grabbed my phone and slammed a connection through to my special squad in Business Espionage. "Put tails on Jack O'Shea. He's leaving the building soon. Tail him and everybody he contacts. Night and day. If I hit paydirt on this, you and your

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men get upgraded and bonused. But God help you if you pull a butch!"

XVII

I GOT so nobody dared to come near me. I was living for one thing only—the daily reports from the tails on O'Shea. Anything else I tried to handle bored and irritated me.

After a week, there were twenty-four tails working at a time on O'Shea and people with whom he had talked. They were headwaiters, his lecture agent, girls, an old test-pilot friend of his stationed at Astoria, a cop he got into a drunken argument with one night—but was he really drunk and was it really an argument?—and other unsurprising folk.

One night, quietly added to the list was: "Consumer, female, about 30, 5' 4", 120 lbs., redhead, eyes not seen, cheaply dressed. Subject entered Hash Heaven (restaurant) 1837 after waiting 14 minutes outside and went immediately to table waited on by new contact, which table just vacated by party. Conjecture: subject primarily interested in waitress. Ordered hash, ate very lightly, exchanged few words with contact. Papers may have been passed, but impossible to observe at tailing distance. Female operative has picked up contact."

About thirty, five-four, one-twenty. It could be Kathy. I phoned to say: "Bear down on that one. Rush me everything new that you get. How about finding out more from the restaurant?"

Business Espionage began to explain, with embarrassment, that they'd do it if I insisted, but that it wasn't approved technique. Usually the news got to the person being tailed and—

"Okay," I said. "Do it your way."

"Hold it a minute, Mr. Courtenay, please. Our girl just checked in. The new contact went home to the Taunton Building. She has Stairs 17-18 on the thirty-fifth floor."

"What's the thirty-fifth?" I asked, heavy-hearted.

"For couples."

"Is she—?"

"Unattached, Mr. Courtenay. Our girl pretended to apply for the vacancy. They told her Mrs. 17 is holding 18 for the arrival of her husband. He's upstate harvesting."

"What time do the stairs close at Taunton's?"

"2200, Mr. Courtenay."

I glanced at my desk clock. "Call your tail off her," I said. "That's all for now."

I got up and told my guards:

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"I'm going out without you, gentlemen. Please wait here. Lieutenant, can I borrow your gun?"

"Of course, Mr. Courtenay." He passed over a .25 UHV. I checked the magazine and went out on foot, alone.

As I left the lobby of Schocken Tower, a shadowy young man detached himself from the wall and drifted after me. I crossed him by walking in the deserted street, a dark, narrow slit between the mighty midtown buildings. Monoxide and smog hung heavily in the unconditioned air, but I had antisoot plugs and he did not. I heard him wheeze behind me. An occasional closed cab whizzed past us, the driver puffing as he pumped the pedals.

Without looking back, I turned the corner of Schocken Tower and instantly flattened against the wall. My shadow drifted past and stopped in consternation, peering into the gloom.

I slammed the long barrel of the pistol against the back of his neck in a murderous rabbit punch and walked on. He was probably one of my own men, but I didn't want anybody's men along.

I deliberately got to the Taunton Building's nightdweller entrance at 2159. Behind me the timelock slammed the door. There was an undersized pay elevator. I dropped in a quarter, punched 35 and read notices while the elevator creaked upward:

NIGHTDWELLERS ARE RESPONSIBLE FOR THEIR OWN POLICING. MANAGEMENT ASSUMES NO RESPONSIBILITY FOR THEFTS, ASSAULTS OR RAPES.

NIGHTDWELLERS NOTE THAT BARRIERS ARE UPPED AT 2210 NIGHTLY AND ARRANGE THEIR CALLS OF NATURE ACCORDINGLY.

RENT IS DUE AND PAYABLE NIGHTLY IN ADVANCE AT THE AUTOCLERK.

MANAGEMENT RESERVES THE RIGHT TO REFUSE RENTAL TO PATRONS OF COMPETITIVE PRODUCTS.

The door opened on the stairwell of the 35th floor. Men and women were squirming uneasily, trying to find some comfort before the barriers upped. I looked at my watch and saw 2208.

I picked my way carefully in the dim light over and around limbs and torsos, with many apologies, counting. At the seventeenth step, I stopped at a huddled figure as my watch said 2210.

With a rusty clank, the barriers upped, cutting off step 17 and 18, containing me and—

She sat up, looking scared and angry, with a small pistol in her hand.

"Kathy," I said.

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She dropped the pistol. "Mitch! You fool!" Her voice was low and urgent. "What are you doing here? They haven't given up. They're still out to murder you—"

"I'm putting my head into the lion's mouth to show I mean it when I say that you were right and I was wrong."

"How did you find me?" she asked suspiciously.

"Some of your perfume came off on O'Shea. *Ménage à Deux.*"

She looked around at the cramped quarters and giggled. "It certainly is, isn't it?"

"I'm not here to paw you, with or without your consent. I'm here to tell you that I'm on your side. Name it and you can have it."

She looked at me narrowly and asked: "Venus?"

"It's yours."

"Mitch," she said, "if you're lying—"

"You'll know by tomorrow if we get out of here alive. Until then, there's nothing more to be said about it, is there? We're in for the night."

"Yes," she said. And then, suddenly, passionately: "God, how I've missed you!"

WAKEUP whistles screamed at 0600. They were loaded with skull-rattling subsonics, just to make sure that no slugabeds would impede the morning turnover.

Kathy began briskly to stow away the bedding in the stairs. "Barriers down in five minutes." She lifted Stair 17's lid and fished around in it for a flat box that opened into a makeup kit. I yelped as a razor raked across the top of my right eyebrow. "Hold *still!*" It cut a swathe across my left eyebrow. Briskly she touched my face here and there with mysterious brushes.

She turned up my upper lip and tucked a pledger of plastic under it. Two flesh-tinted tapes pasted my ears against my head and she said, "There," and showed me the mirror.

"Good," I approved.

"There go the barriers," she said tensely, hearing some preliminary noise that was lost on my inexperienced ear.

The barriers clanged down. We were the only nightdwellers left on the 35th floor. But we were not alone. B. J. Taunton and two of his boys stood there. Taunton was swaying a little drunkenly, red-faced and grinning. Each of his boys had a machine pistol trained on me.

Taunton hiccoughed and said: "This was a hell of an unfortunate place for you to go chippy-chasing, Courtenay ol' man. We have a photo-register for crashers like you. Girlie, if you

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will kindly step aside—"

She didn't step aside. She stepped right into Taunton's arms, jamming her gun against his navel. His red face went the color of putty.

"You know what to do," she said.

"Boys," he said faintly, "drop the guns. For God's sake, *drop them!*"

They did. Taunton began to sob.

"Turn your backs," I told them, "and lie down." I had my borrowed UHV out. It felt wonderful.

The elevator could easily have been flooded with gas, so we walked down the stairs. It was a long, wearying business, though all nightdwellers had been cleared hours ago for B. J.'s coup. He sobbed and babbled all the way.

At the tenth floor landing, he wailed: "I've got to have a drink, Courtenay. I'm dying. There's a bar right here. You can keep that gun on me—"

Kathy laughed humorlessly at the idea and we continued climbing down.

AT the nightdweller exit, I draped my coat over Kathy's gun hand in spite of the winter outside.

"It's all right!" B. J. called quaveringly to an astounded lobby guard who started our way. "These people are friends of mine. It's quite all right!"

We walked with him to the shuttlemouth and dived in, leaving him, gray-faced and sweating, in the street. The only way he could get at us was by blowing up the entire shuttle, and even he wouldn't dare.

We zigzagged for an hour and I called my office from a station phone. A plant protection detail rendezvoused with us at another station and we were in the Schocken Tower fifteen minutes later.

A morning paper gave us our only laugh so far that day. It said, among other things, that a coolant leak had been detected at 0545 today in the stairwell of the Taunton Building. B. J. Taunton himself, at the risk of his life, had supervised the evacuation of the nightdwellers in record time and without casualties.

Over a breakfast tray on my desk, I told Kathy: "Your hair looks like hell. Does that stuff wash out?"

"Enough of this love-making," she said. "You told me I could have Venus. Mitch, I meant it. Did you?"

"I did then."

"And now?"

"All my life I've wanted the position I have now, Kathy. It was in every dream, something

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so far off and desirable that I honestly never believed I'd reach it. But I did."

"And *now?*" she repeated insistently.

"If I hadn't found out what life is like on the consumer level, I think I'd be completely happy—assuming, of course, I could also have you."

She shook her head with grim emphasis. "You couldn't."

"That's not all it is, though—chucking the dream of a lifetime for a woman. I couldn't do it if the dream hadn't soured." I grabbed her hand, hung onto it as if I'd sink without it. "Kathy, I was brought up to think the Connies—the World Conservation Association—were crackpots. Look, I can't even say 'Connies' without flinching. And now I know the Conservationist viewpoint is profoundly intelligent. Don't you see what that does? It leaves me with nothing to believe in!"

Her hand tightened around mine. "There's Conservationism."

"It wouldn't work, Kathy. I've thought about it and thought about it ever since I found out you were in the organization. I knew you'd never get mixed up in anything that didn't make sense; you're not the fanatic type. But let's suppose we could institute Conservationism right now. We'd have to cut back population, cut back production, cut back just about everything so we could conserve our natural resources. The economic dislocation would be tremendous. It would lead to wars, anarchy, starvation."

"Do you think things can go on indefinitely as they are, Mitch?" she asked gently.

"I don't know," I admitted. "Every time we've run out of something—coal, oil, various metals, whatever it was— we always came up with a substitute. Maybe not as good, maybe, in lots of cases, better than the original. The point is that the world is geared to increasing production, increasing population, synthetics, substitutes—Sales! You can't knock that over without knocking the world to pieces, Kathy!"

"*This* world," she said.

I looked at her vacantly.

"We know it's too late to do anything about Earth, Mitch. We've known it for some time. That's why we want Venus—a young, unspoiled, unplundered planet, where we can start right and continue right. A Conservationist world, Mitch!"

"It's a broiling inferno of poison hurricanes, a dumping ground for our surpluses and that's all."

"Not to us, Mitch. We're the only people who know what to do with it. We landed the first man there!" My face must have gone

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blank, for she said: "O'Shea is one of us."

"Since when?"

"Since his mother and father realized he wasn't growing. They knew we'd need space pilots soon—and the smaller the better. Earth didn't discover Venus. The W. C. A. did. We had to write this world off. To do that, we had to have another one."

"But not that one!" I argued. "It's not fit for human life!"

"We have our own research men, Mitch. We aren't fooling ourselves; you understand us well enough to know we're not myopic idealists. Venus can be turned into a good, healthy, habitable, prosperous planet. It won't be easy, but it can be done. And once it's done, it won't ever be undone the way Earth was."

I sat there trying to eat breakfast and digest the ideas that had been hurled at me, both at the same time. I couldn't. I got up and began walking the office; the walls kept stopping me short every few paces.

"Room, Mitch," she said. "Not these cramped little cubicles. *Real* room where you can see the horizon and the sky, where you can build as small or as large as you please, where furniture doesn't have to be folded away so you can find enough space to turn in."

"But I'm used to this. We all are."

"We won't be when we get out of confinement. That's not the point, though. Venus belongs to us, Mitch. We demand the right to settle it."

"God, it's going to be a headache!" I groaned. "We have our rosters filled with eager consumers itching to get to Venus. Well, I'll backtrack." I punched the intercom to R. & D. "Charlie, about the CO_2 competition with Earth producers. Forget it. I found that Taunton's bills most of the makers."

"Fine, Mr. Courtenay," Charlie said happily. "The preliminary work looks as if we'll give them a real solid kick in the pants."

I dropped the intercom key and said to Kathy: "Can you dig up Runstead for me? This is going to be a job. A copysmith's highest art is to convince people without letting them know they're being convinced. What I've got to do is unconvince people without letting either the copysmiths or the people know what's happening. I need Runstead for that."

Kathy smiled. "Runstead committed suicide. Remember?"

"Sure. We'll have to work out a cover-up story for that, I suppose. Next Conservationist meeting I go to, I'm going to suggest we use some less flamboyant way of getting people out when the heat's on."

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"It can be arranged," she said, kissing me. "That's for saying 'we.' "

"What else can I say? Look, darling, I've got a dandy executive's living suite, a full twelve by twelve, upstairs. Suppose you go up and cork off for a while; you've had a hard night and I've got a lot of work to do."

She kissed me energetically and said: "Don't work too hard, Mitch. I'll see you tonight."

I COULDN'T have done it without Runstead—not in time. He came whistling back from retirement in response to some underground message from Kathy. I had broken it to the Board ahead of time—"Unusual tasks, gentlemen, demand unusual methods. We owe Matt an enormous debt of gratitude, every one of us, for having altered the whole structure of his personal life to free himself for certain research problems which even yet must remain confidential."

The Board took the hint. By acclamation, they gave him half of Sillery's confiscated stock as a bonus.

Matt arrived in the middle of a meeting. We shook hands for public consumption, and there never was any private discussion afterward. He knew what the job was.

I still thought Runstead was a rat. But I had to admit things were leaping.

On the surface level, Fowler Schocken Associates had launched a giant all-client slogan contest, with fifteen hundred first prizes, all of them a berth on the Venus rocket. There were eight hundred thousand prizes in all, but the others didn't matter. Judging was turned over to an impartial firm of contest analyzers, which happened to be headed by the brother-in-law of a protege of Runstead's. Only fourteen hundred of the prize-winners,

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Matt told me; were actually members of the Connie underground. The other hundred were dummy names entirely, to take care of last minute emergencies.

I took Kathy with me to Washington to spark the final clearance of the rocket for flight, while Runstead minded the baby back in New York. I'd been in Washington often enough for a luncheon or an afternoon, but this was going to be a two-day job; I looked forward to it like a kid. I parked Kathy at the hotel and made her promise not to do any solo sightseeing, then caught a cab to the State Department. A morose little man in a bowler hat was waiting in the anteroom. When he heard my name, he got up hastily and offered me his seat. Quite a change from the Chlorella days, Mitch, old boy, I told myself. Abels, our attaché, came flustering out to greet me; I calmed him and explained what I wanted.

"Easiest thing in the world, Mr. Courtenay," he promised. "I'll get the enabling bill put through committee this afternoon, and

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with any luck at all it'll clear both houses before noon tomorrow."

I said expansively, "Need any backing?"

"Might be nice for you to address the House in the morning, if you can find the time. They'd love to hear from you, and it would smooth things over a little for a quick passage."

"Glad to," I said, reaching down for my bag. The man in the bowler hat beat me to it and handed it to me with a little bow. "Just set your time, Abels," I told the legate. "I'll be there."

"Thank you *very* much, Mr. Courtenay!" He opened the door for me.

The little man said tentatively: "Mr. Abels?"

The legate shook his head. "You can see how busy I am," he said, not unkindly. "Come back tomorrow."

The little man smiled gratefully and followed me out the door. We both hailed a cab. He opened the door for me.

"Can I drop you anywhere?" I asked.

"It's very good of you," he said.

The driver leaned back on his pedals and looked in at us.

I told him: "The Park Starr for me. But drop this other gentleman off first."

The driver nodded. "White House, Mr. President?"

"Yes, please. I can't tell you how happy I am to meet you, Mr. Courtenay," the little man told me. "I overheard your conversation with Mr. Abels, I'm afraid. It was very interesting to hear that the Venus rocket is so near completion. Congress," he said wistfully, "has got out of the habit of keeping me posted on what's going on. Of course, I know they're busy with their investigations and all, but—" Mischievously, he said: "I entered your contest, Mr. Courtenay. My slogan was, 'I'm starry-eyed over Starrs, verily I am.' I don't suppose I could go along, though, even if I win."

"I can't see how it would be possible. They must keep you pretty busy right here."

"Oh, not particularly. January's heavy; I convene Congress, you see, and they read me the State of the Union message. But the rest of the year passes slowly. Will you really address Congress tomorrow, Mr. Courtenay? It would mean a joint session, and they usually let me come for that."

"Be delighted to have you," I said cordially.

The cab stopped and the President shook my hand warmly and got out. He poked his head in the door. "Uh," he said, looking apprehensively at the driver,

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"you've been very good to me. I may be stepping out of line in saying this, but if I might make a suggestion—I understand something about astronomy, it's a kind of hobby, and I hope you won't delay the ship's takeoff past the present conjunction."

I stared. Venus was within ten degrees of opposition and getting farther away—not that it mattered, since most of the trip would be coasting anyhow.

He held a finger to his lips. "Good-by, sir," he said. I spent the rest of the trip staring at the backs of the driver's hairy ears, and wondering what the little man had been getting at.

WE took the evening off, Kathy and I, to see the sights. The famous cherry blossoms were beautiful, all right, but, with my newfound Conservationist sentiments, I found them ostentatious. "A dozen would have been plenty," I objected. "Scattering them around in vase after vase this way is plain waste. You know what they'd cost in Tiffany's?"

Kathy giggled. "Wait till we take over Venus. Did you ever think what it's going to be like to have a whole *planet* to grow things in? Acres and acres of flowers, trees, everything!"

A plump schoolteacher-type leaning on the railing beside us straightened up, glared, sniffed and walked away.

"Before you get us in trouble," I told Kathy, "let's go to—let's go back to the hotel."

I woke up to an excited squeal from Kathy. "Mitch," she was saying from the bathroom, two round eyes peering wonderingly over the towel that was draped around her, "they've got a *tub* here! I opened the door to the shower stall, and it wasn't a stall at all! Can I, Mitch? Please?"

There are times when even an honest Conservationist finds pleasure in being the acting head of Fowler Schocken Associates. I yawned and blew her a kiss and said, "Sure. And make it all fresh water, hear?"

While the tub was filling, I punched the communicator and got the morning summary relayed from Schocken Tower. Miss Hinkle's flat tones held nothing of interest that morning. I sighed briefly for Hester, who always managed to find something worth mentioning. It was hard to believe that Hester had been dead less than a month.

And, I remembered, I still hadn't found out who had killed her with the poison meant for me. Taunton was out; they hadn't known I was on the ship. Connies? Not with Kathy directing them, not after she'd gone to such pains to save my life before.

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Not unless there was something I hadn't quite got clear.

For instance:

Kathy and Matt Runstead and Jack O'Shea had plotted together to put me on ice—literally. All right, that accounted for most of the things that had puzzled me. But it didn't account for Hester. And, when you stopped to think of it, it didn't account for all of Runstead's work, either.

The Connies were in favor of space travel. But Runstead had sabotaged the Venus test in Cal-Mex. There was no doubt of that; I had as good as a confession from his fall-guy. Could it have been a doublecross? Runstead posing as a Connie who was posing as a copysmith, and in reality—what?

It took half a minute to get through to New York. Hinkle's flat voice went up an octave when she heard me again. "Why, Mr. Courtenay!"

"Get me Runstead."

"He phoned in this morning to say he had an appointment out of town, Mr. Courtenay. He didn't say where."

I deliberately controlled my voice. "And just why the hell wasn't that in the morning summary?" I demanded, and slapped down the off key before she could answer.

I flung open the door to the bath. Kathy's face smiled startledly at me from the bath alcove, and then the smile flickered out. "Mitch," she whispered. "What's the matter?"

"I've got questions." I sat grimly on the edge of the tub, for once immune to the slim fair thighs and the firm breasts, and ticked the questions off on my fingers: "One, who tried to kill me on the Moon rocket? Two, what did Runstead have to do with it? Three, what kind of fool do you think I am? Four, how fast can you think up lies to answer me with?"

The storm of weeping was answer enough. I didn't wait for any more.

I HADN'T even rinsed the morning beard off my face; I had stomped out of the hotel in too much of a rage to notice whether I was as tastefully dressed to speak before Congress as they might legitimately have expected. And I didn't care.

Just before I was scheduled to speak, our Washington lobby chief pushed through the crowd to me. He handed me a strip of facsimile paper. "It's all here, Mr. Courtenay," he said unhappily. "Uh, is everything all right?"

"Everything's just fine," I told him, which was a lie. I waved him off and looked at the facsimile. It was from Dicken, on the scene at the rocket:

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Passengers and crew alerted and on standby. First movement into ship begins at 1145 EST, loading completed by 1645 EST. Ship fully fueled, supplied and provisioned since 0915. Security invoked, but MIA, CIC and *Time-Life* known to have filed coded dispatches through dummies. Chart room asks please remind you: Takeoff possible only in AM hours.

I rubbed the tape between my palms; it disintegrated into ash. As I climbed to the podium, someone tugged at my elbow. It was the President, leaning out of his ceremonial box.

"Mr. Courtenay," he whispered, "I guess you understood what I was trying to tell you yesterday in the cab. I'm glad the rocket's ready." He widened his grin. "You probably know this, but he's here."

I had no chance to find out who "he" was. As the Speaker of the House came toward me, hand outstretched, and the applause started from the floor, I forced a smile. But it was a trick of the rictus muscles entirely. I had little to smile about. If the news about the Venus rocket had trickled down to the President, there wasn't a chance that I could pull a surprise on anyone—even if I could figure out whom I wanted to surprise.

Fowler Schocken was a pious old hypocrite and a fraud, but if it hadn't been for Fowler Schocken I could never have got through that speech. I could hear his voice in my ears. "Sell 'em, Mitch; you can sell them if you'll keep in mind that they *want* to buy." And I sold the assembled legislators precisely what they wanted to own. The applause was fantastic.

There were a dozen standing figures in the hall, clapping their hands and begging the Chair for recognition, including white-haired old Colbee, lean and dignified with his four decades of service.

"The Chair recognizes the gentleman from Coca-Cola."

"Thank you very much, Mr. Speakuh." Colbee's face wore a courtly smile. Coca-Cola was nominally one of the few big independents; but I remembered that Fowler had commented once on their captive agency's surprising closeness to Taunton. "If I may ventuah to speak for the Upper Chamber, I should like to thank ouah distinguished guest for his very well-chosen remarks heah. I am certain that we all have enjoyed listening to a man of his calibeh and standing." *Go back to the Berlitz school, you Westchester phony,* I thought bitterly. I could feel the weenie coming as Colbee rumbled on. "With the permission of the Chair, I should like to ask ouah guest a number of questions involving the legislation we have been asked to consider heah today."

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By now even the galleries had caught on to what was happening. I hardly needed to hear the disastrous rest:

"It may have escaped youah attention, but we are fortunate in having with us another guest. I refer, of course, to Mr. Taunton." He waved gracefully to the visitor's gallery, where B. J.'s red face appeared between two stolid figures that I should have recognized at the first moment as his bodyguards. "In a brief discussion before ouah meeting heah, Mr. Taunton was good enough to give me some information which I would like Mr. Co'tenay to comment upon. First, I would ask Mr. Co'tenay if the name of George Groby, wanted for Contract Breach and Femicide, is familiar to him. Second, I would like to ask if Mr. Co'tenay *is* Mr. Groby. Third, I would like to ask Mr. Co'tenay if there is any truth to the repo't, given me in confidence by someone in whom Mr. Taunton assures me I can repose absolute trust, that Mr. Co'tenay is a membah in good standing of the World Conservation Association, known to most of us who are loyal consumers as—"

Even Colbee himself could not have heard the last words of his sentence.

The uproar was like a physical blast.

XIX

SEEN in retrospect, everything that happened in the next wild quarter of an hour blurs and disappears. But I remember frozen moments of time that seem almost to have no relation to each other:

The waves of hatred that flowed around me, the contorted face of the President below me, screaming something unheard to the sound engineer in his cubicle, the wrathful eyes of the Speaker as he reached out for me.

Then the wild motion halted as the President's voice roared through the chamber at maximum amplification, "I declare this meeting adjourned!" and the stunned expressions of the legislators at his unbelievable temerity. There was greatness in that little man. Before anyone could move or think, he clapped his hands—the magnified report was like atomic fission—and a smartly uniformed squad moved in on us.

"Take him away," the President declaimed, with a magnificent gesture, and at doubletime the squad surrounded me and hustled me off the podium.

The President convoyed us as far as the door while the Assembly gathered its wits. His face was white with fear, but he whispered: "I can't make it stick, but

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it'll take them all afternoon to get a ruling from the Chamber of Commerce. God bless you, Mr. Courtenay."

And he turned back to face them. I do not think Caligula's Christians walked more courageously into the arena.

The guards were the President's own, honor men from Brink's leadership academy. The lieutenant said never a word to me, but I could read the controlled disgust on his face as he read the slip of paper the President had handed him. I knew he didn't like what he was ordered to do, and I knew he would do it.

They got me to Anacosta and put me on the President's own transport. They stayed with me and fed me, and one of them played cards with me, as the jets flared outside the ports and we covered territory. All they would not do was talk to me.

It was a long flight, in that clumsy old luxury liner that "tradition" gave the President. Time had been wasted at the airport, and below us I could see the fuzzy band of the terminator creeping past. As we came down for a landing, it was full dark. And the waiting was not yet over. The lieutenant left the ship alone; he was gone for a long, long time.

When he came back, it was midnight. "All right," he said to me. "A cab's waiting for you outside. The driver knows where to go."

I climbed out and stretched. "Thanks," I said awkwardly.

The lieutenant spat neatly on the ground between my feet. I scrambled out of the way of the takeoff.

THE driver was Mex. I tried him on a question and he gaped at me; no English. There were fifty good reasons why I didn't want to go along with him without a much better idea of what was up. But when I stopped to think of it, I had no choice. The lieutenant had followed his orders. I could see his active little military mind framing the report that would tip someone off to where they could find the notorious Connie, Mitchell Courtenay.

I would be a sitting duck; it would depend on whether Taunton or the police got to me first.

You'd think that the fact that the driver was a Mexican would have tipped me off. It didn't, though. Not until I saw the glimmer of starlight on the massive erectile before me did I know I was in Arizona, and realize what the President had done for me.

A mixed squad of Pinkertons and our own plant protection men closed in on me and hustled me past the sentry boxes, across

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the cleared land, up to the rocket itself.

The OIC showed me the Connie crescent he could make with thumb and forefinger and said: "You're safe now."

"But I don't *want* to go to Venus!"

He laughed out loud.

Hurry up and wait, hurry up and wait. The long, dreary flight had been a stasis; everything at both ends of it had been too frantic with motion over which I had no control to permit thought. They gave me no chance to think here, either. I felt someone grabbing the seat of my pants and I was hoisted inside. There I was dragged more than led to an acceleration hammock, strapped in and left.

The hammock swung and jolted, and twelve titans squatted on my chest. Good-by, Kathy; good-by, Schocken Tower. Like it or not, I was on my way to Venus.

BUT it wasn't really good-by to Kathy. It was she herself who came to unstrap me when the first blast was over.

I have never seen an expression quite like the one on Kathy's face. It was part darling-I-did-the-most-extravagant-thing-today, and a little bit I'm-not-angry-just-terribly-disappointed, and the corners of her mouth were pure you-lousy-son-of-a-bitch.

She said: "If you'll apologize, I'll explain."

I got out of the hammock and tottered weightlessly, rubbing my back. I opened my mouth to make a cynical reply. What came out was a squeaky, "Oh, God, Kathy!"

It wasn't a brilliant speech, but I didn't have time. Kathy's lips and mine were occupied.

When we stopped for breath, I said, "What alkaloids do *you* put into the product?" but it was wasted. She wanted to be kissed again. I kissed her.

It was hard work, standing up. Every time she moved, we lurched against the wall or drifted off the floor entirely. Only a standby jet was operating and we were otherwise beyond the limit of weight.

We sat down.

"I'm sorry if I guessed wrong," I said. "All of a sudden it looked as if you and Runstead were doublecrossing everybody. Especially me."

It was only a little kiss this time. Just to show.

I stretched and looked around me. "Lovely place you have here. The thing was, you see, all at once I wanted out. I wanted you to have Venus—I'd promised it to you—but I wanted out for myself. So I ordered the ship loaded up, to get it on the way.

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You were going to be on it, but I wasn't."

"I can't spend my life blaming you for jumping to conclusions, Mitch," she said gently. "But you could tell me what touched you off."

I explained about Runstead's lousing up San Diego and Venus Project. And about Hester's murder.

"Oh, Mitch," she said. "Where do I begin? How'd you ever get to be star class?"

"Went to night school," I said. "I'm still listening."

"Well, you should be able to figure it out. Sure, we wanted space travel. The human race needs Venus. But we didn't want Fowler Schocken on Venus. Or Mitchell Courtenay, either. Not as long as Mitchell Courtenay would loot Venus for an extra megabuck's billing. There aren't too many planets around that the race can expand into, Mitch. We couldn't have Fowler Schocken's Venus Project succeed."

"Um," I said, digesting. "And Hester?"

Kathy shook her head. "You figure that one out."

"You don't know the answer?"

"I do. It isn't hard."

I coaxed, but she wouldn't play. So I kissed her for a while again, until some interfering character with a ship's-officer rosette on his shoulder came grinning in. "Care to look at the stars, folks?" he asked, in a tourist-guide way that I detested. It didn't pay to pull rank on him, of course; ship's officers always act a cut above their class and it would have been ungraceful, at least, to brace him for it. Besides—

The thought stopped me for a moment. I was used to being star class by now. It wasn't going to be fun, being one of the boys. I gave my Conservationist theory a quick mental runthrough. No, there was nothing in it that indicated that I would have a show-dog's chance of being sirred and catered to any more.

Hello, Kathy. Good-by, Schocken Tower.

WE went up to the forward observation port. All the faces were strange to me.

There isn't a window to be found on the Moon ships; radar-eyed, GCA-tentacled, they sacrifice the esthetic but useless spectacle of the stars for the greater strength of steel. I had never seen the stars in space before.

Outside the port was white night. Brilliant stars shining against a background of star particles scattered over a dust of stars. There wasn't a breadth of space the size of my thumbnail where there was blackness: it was all light, all fiery pastels. A rim

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of fire around the side of the port showed the direction of the Sun.

Kathy introduced me around. The captain of the ship turned out to have a voice I knew; he'd spoken to me on the longlines phone, and I recalled with no pleasure the particular nastiness with which I'd reamed him out for some small delay. However, he showed no rancor. He treated me—in fact, all of them treated me—like some grand hero of the republic from whom nothing more could be expected, a pensioned Caesar or Napoleon in retirement.

All at once I realized how Jack O'Shea had felt. It was great to be great. To have been great was something else again.

Kathy's arm went around me. Kathy *always* reads my mind.

We turned away from the port. "Where's Matt Runstead?" I asked.

"Back in Schocken Tower, living on wakeup pills, trying to untangle the mess. Somebody had to stay behind, Mitch. Fortunately, Matt can vote your proxies. We didn't have much time to talk in Washington; he's going to have a lot of questions to ask, and nobody around with the answers."

I stared. "What in the world was Runstead doing in Washington?"

"Getting you off the spot, Mitch. After Jack O'Shea broke—"

"After *what*?"

"Look, let's take it in order. O'Shea broke. He got drunk one night too often, and he couldn't find a clear spot in his arm for the needle, and he picked out the wrong girl to break apart in front of. They had him sewed up tight. All about you, all about me, the rocket, everything."

"Who did?"

"Your great and good friend, B. J. Taunton." Kathy struck a cigarette viciously.

I could read her mind a bit, too. Little Jack O'Shea, 60 pounds of jellied porcelain and melted wax, thirty-five inches of twisted guts and blubber. There had been times in the past weeks when I had not liked Jack. I canceled them all, paid in full, when I thought of that destructible tiny man in the hands of Taunton's anthropoids.

"Taunton got it all, Mitch," Kathy said. "All that mattered, anyhow. If Runstead hadn't had a tap on Taunton's interrogation room, we would have had it right then. But he had time to get down to Washington and warn me and the President—the President is no Conservationist, but he's a good man; he can't help being born into office—and here we are."

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The captain interrupted us. "Five minutes till we correct. Better get back to your hammocks. The correction blasts may not be much, but you never know."

Kathy nodded and led me away. I plucked the cigarette from her lips, took a puff and gave it back. "Why, Mitch!" she said.

"I'm reformed," I told her. "Kathy, one more question. It isn't a nice question."

She sighed. "The same as between you and Hester."

I asked, "What was between Jack—uh?"

"You heard me. What was between Jack and me was the same as what was between you and Hester. All one way. Jack was in love with me, maybe. I was too damn crazy mad in love with you!"

It seemed like the moment to reach out and kiss her again, but it must not have been because she pushed me away.

"That's what you're so stupid about!" she was saying. "Jack wanted me. I didn't want anyone but you, not ever. And you never troubled to figure it out—never knew how much I cared about you any more than you knew how much Hester cared about you. Good Lord, Mitch, how blind can you be?"

"Hester in love with me?"

"Why else would she commit suicide?" Kathy actually stamped her foot, and floated an inch above the floor as a result.

"Well," I said dazedly.

The sixty-second beeper went off. "Hammocks," said Kathy, and the tears in her eyes flooded out. I put my arm around her.

"This is a rotten undignified busisness," she said. "I have exactly one minute to kiss and make up, let you get over your question-and-answer period, tell you I have a private cabin and there're two hammocks in it, and get us both fastened in."

I straightened up fast. "A minute is a long time."

It didn't take that long.

XX

SO we landed. After the wild excitement wore off, I felt like sitting down and writing a postcard to the little man back in Washington:

"Dear Mr. President, now I know what you mean. On special occasions they sometimes let me in, too. Sincerely, Mitchell (Superfluous) Courtenay."

We torpedoed the billowy cloud layer, roared incandescently down in the tangential orbiting approach, minced the final few hundred meters to the landing—and I was a bum.

They were nice enough about

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it. They said things like: "No, thanks, I can handle it myself," and, "Would you mind stepping back, Mr. Courtenay?" when what they should have said was: "Get the hell out of the way." And I wondered how long it would take before they began to put it that way.

You know what it's like being a lost soul?

It's wandering through a spaceship with busy people rushing here and there carrying incomprehensible things. It's people talking urgently and efficiently to each other and you understand maybe one word in three. It's offering a suggestion or trying to help and getting a blank stare and polite refusal.

It's Kathy: "Not right now, Mitch darling. Why don't you—" And her voice trailed off. The only appropriate, constructive, positive thing I could do was drop dead. But nobody said so. They would carry me on the books, a hero whose brief hour of service rendered, when balanced against the long years that followed, might or might not show a tiny net profit. You never could tell with ex-heroes, but you can't just gas them . . .

They were nice about letting me come along when fourteen of the really important people, donned spacesuits and set foot on Venus. (Note for historians: it was completely unceremonious. We just went out the lock into the lee of the ship, anchored by cables. Nobody noticed who of the fifteen was first to step out—and be yanked by the burning wind as far as the cable slack would let him, or her.)

I reached for my wife and the wind sent her bobbing on the end of her cable out of my grasp. Nor did she notice me, a hulking and brutish figure in an oversized suit, trying to claw my way to her along the grab-irons welded to the hull. She had eyes only for the planet I had given her, the orange-lit, sandstorming inferno.

When they reeled us in and we took off our armor, I felt as though I had been flailed with anchor chains from Easter to Christmas. Aching, I turned to Kathy.

She was briskly rubbing her surgeon's fingers and conferring with somebody named Bartlow in words that sounded like these: "—then we'll clam the ortnick for seven frames and woutch green until sembril gills?"

"Yes," Bartlow said, nodding.

"Splendid. When the grimps quorn with the fibers, Bronson can fline dimethyloxypropyloluene with the waterspouts—"

I hung around and Kathy finally noticed me with a "Hello, dear" and plunged back into the important stuff. After a while I

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wandered off. I got in the way of the crews dismantling the ship's internal bulkheads. Then I got in the way of the commissary women, then in the way of the engineers who were already modifying our drive reactor to an AC electric pile. When I got in the way of the medics who were patching up passengers banged around in the landing, I took a sleepy-pill. My dreams were not pleasant.

KATHY was crouched over the desk when I woke up, pawing through stacks of green, pink and magenta-covered folders. I yawned. "You been up all night?"

She said absently, "Yes."

"Anything I can do to help?"

"No."

I rescued one of the folders from the floor. *Medical Supplies Flow Chart, 3d to 5th Colony Year, No Local Provisioning Assumed* was the heading. The one under it covered: *Permissible Reproductive Rate, 10th Colony Year.*

"That's real planning," I said. "Got one covering forecasted life-expectancy of third-generation colonists born of blue-eyed mothers and left-handed fathers?"

"Please, Mitch," she said impatiently. "I've got to find the planning schedules for the first two months. Naturally we planned far ahead."

I dressed and wandered out to the chowline. The man ahead of me, still wearing the soft padded undershoes that went with donning a heat suit, was telling his friends about Venus. Not more than a tenth of the colonists had seen their new planet close up as yet; he had a large and fascinated audience.

"So we located the spot for the drilling unit," he said. "We moored it to a rock taller than me. We started bracing the unit. What happens? *Plop.* The damn rock explodes. The wind catches the drill and you should've seen that thing take off. Lucky we hadn't cast off the cables to the ship yet; it'd still been going. As it is, back to the shop. A whole day's work shot."

I listened through the story and the questions.

When he was hurrying off to another incomprehensible job, I said to him: "Wait a minute. I want to talk to you."

"Sure, Mr. Courtenay. What can I do for you?"

"Most of this stuff I don't get, but I understand a rock drill. You're a foreman. Can you put me on your crew?"

"You *sure* you understand a rock drill, Mr. Courtenay? It ain't easy to change a carbide tip out there in the wind. You got to unscrew the camber-flamber and wuldge it to the imbrie before

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the wind gets it, and that takes—"

There we were again. But this time I said: "I can handle it."

"That's great, Mr. Courtenay. I can use another man. Weiss, I guess you don't know him, he got smacked by a piece of flying something or other, so I'm one short." He measured me with his eye. "You can use his suit. It wasn't hurt a bit."

An ugly little chill went through me. "What about Weiss?"

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"The work-suits are too rigid. Something hits you hard, it goes *clang* hard enough to bust your eardrums, drive your eyes into your head and rupture membranes all through your body. But the suit lives through it. Well, we go out with a replacement drill at 1730, Port Fourteen aft. I'll see you there, Mr. Courtenay."

I was there and proud of it.

The drilling crew was big and tough—shock troops. They knew my name and face, of course, and were reserved. As we got into the armored work-suits, one of them asked apologetically: "Sure you can handle this detail, Mr. Courtenay? It's rough out there—"

I felt my blood pounding with anger I shouldn't put into words. He was only trying to be helpful. There was no use yelling at him that I was a man and could swing my weight with men, that I wasn't just a copysmith and as obsolete as the dinosaur. I nodded and we stepped out.

Whoosh! The wind hurled us five yards.

Crack! The cables held.

Three seconds outside and I was fighting for breath.

"Goddam it!" I gasped, hating my weakness.

I had forgotten that work-suits were wired for sound. The foreman's voice said inside my helmet: "Mr. Courtenay, please keep the circuit clear for orders. Guire! Slack off! More—hold it! Winters, haul your cable—hold it. Mr. Courtenay, work your way over to Winters and lay hold."

Clawing along the storm-swept rocks, I reached Winters and grabbed the cable. I wondered

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dimly if the suit's oxygen supply was functioning, if the dryer was working. It didn't feel as if they were. I could hardly breathe and I was soaked with sweat.

I made a feeble pretense of helping Winters, who had the build of a granite crag, jockey the drill.

It was like flying a kite—if it took five men to fly a kite, and if the kite had to be kept at ground level, and if the kite perpetually threatened to fly you instead of vice versa.

After two minutes outside, my leg and arm muscles were quivering uncontrollably from the mere effort of standing up and keeping balanced. It was the tremor of flexor pulling against extensor, the final fatigue that comes just before you let go, forgetting everything except that you can't keep it up any longer, that you'll die if you keep it up for another split-second.

But I hung on for one minute more, streaming sweat, sobbing air into my lungs and maybe—maybe—helping a little with a few extra foot-pounds of heave-ho on the cable when it was ordered.

And then I let go, a little less than half-conscious, and the wind got me. My cable streamed and I dangled at the end of it, unable to do anything but listen to the voices in my helmet.

"Mr. Courtenay, can you make it back to the ship?"

"He don't answer. He must have blacked out."

"Stinking luck! Almost get the drill positioned and then—damn the stinking luck! Winters, work your way to him and see if he's all right."

"Hell, what can I see? Phone them to reel him in is all we can do."

"Winchman! Reel in Number Five. He's blacked out."

The cable thrummed and I began to scrape along the ground to the port.

And still they talked. "We can do it with four if it kills us, men. You all game?"

I heard the ragged chorus of yesses as I scraped helplessly over the rocks, like a fish on a hook.

"Shouldn't have let him come out at all," one of the crew said.

SHAME was crowded out by terror. My suit clanged against something and motion stopped. A rock, I saw dazedly. A big rock. The six ring-bolts to which my cable was lashed began to creak and strain.

The fools at the winch, I realized with clear, pure horror, had not noticed I was snagged.

"Stop!" I screamed into the helmet. But I did not have a phone line through my cable to the ship.

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The foreman understood instantly. *"Winchman! Ease off! He's snagged!"* The ring-bolts ceased to strain. "Mr. Courtenay, can you clear yourself or—or should we come to help you?" He was only human. There was bitterness in his voice.

I said rustily: "I can clear myself. Thanks."

But I didn't have to. The big, solid rock I had snagged on began to disappear. I don't mean it vanished, either with or without a thunderclap. Nor did it grow transparent and finally become invisible. But it began to melt from the top, like a ball of string unraveling or like an apple being peeled for a banquet before it's divided into servings—and yet it was something like gradually turning into powder and blowing away. Naturally, it isn't easy to describe.

It was the first Venusian anybody had ever seen.

XXI

THEY got me into the ship and patched me up. Kathy didn't tend me in the hospital—she was a surgeon and administrator, and all I had was R.N. stuff like bruises and scrapes, but plenty of them.

In three days I was discharged with the entire hospital staff suspecting I was psychotic. I could go them one better. I *knew* I was.

Item: I would wash and wash, but I never felt clean.

Item: Suicidal tendencies. I wanted to go into the nuclear reactor room so bad I could taste it—and the reactor room was sudden death.

Item: Claustrophobia. The giant ship wasn't big enough for me. I wanted to go outside, into that flailing inferno.

The first night out of the hospital, I sat up in bed waiting and waiting for Kathy to come back from a staff meeting. I was dog-tired, but I didn't dare sleep. I had once found myself halfway to the reactor room before I stubbed my toe and woke up.

She came in, blinking and red-eyed at 0245. "Still awake?" she yawned at me, plumping onto her hammock.

"Kathy," I said hoarsely. "I'm cracking up."

She looked at me without much interest. "Did I ever tell you I read a paper on malingering to the New York Academy of Medicine?"

I got up mechanically and started for the reactor room, grabbed hold of myself, turned around and sat down. I told her where I had been going.

She turned nasty. "Not you. I know you better than most doctors get to know their patients. I also know the exact science of

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psychiatry and I know that a person with your mental configuration could not possibly have the symptoms you describe. No more than two plus two can equal five. I presume you feel rejected—which, God knows, you have every right to — and are consciously trying to hoodwink me into thinking you're an interesting case that needs my personal attention."

"Bitch," I said.

She was too tired to be angry. "If I thought there were the smallest possible chance that your alleged symptoms are real and do spring from your unconscious, I'd treat you. But there isn't any such chance. I have to conclude that you're consciously trying to divert my energy from the job I have to do. And under the circumstances that is a despicable thing."

"Bitch," I said again, and got up and went out to go to the reactor room.

My feet moved as though they didn't belong to me, and I still felt the dirt on me that no soap and water or alcohol had been able to remove.

She had meant every word of it. She knew her trade. And it *was* an exact science. She thoroughly believed that I couldn't have the symptoms I had. If she'd said it about somebody else, I would have taken her word for it unquestioningly. Only I had the symptoms—

Or were they symptoms?

I stopped in the corridor, though my legs wanted to go on carrying me into the reactor room.

AGRONOMY SECTION, a sign over a door said. I went in. There was no microscope. I looked through three more rooms before I found one—and a knife that would do as a scalpel.

I meant only to flick a pinpoint specimen off the base of my thumb, but in my dull intoxication I gashed a minor blood vessel. I found some reasonably sterile-looking gauze and wound it around my hand.

I dropped the ragged little crumb of meat into the oil-lens objective, tapped it to shake free the bubbles, levered it into a turret chosen at random. There was some difficulty in getting the light source to function — I couldn't make out what I was supposed to do with the knob marked "polarizer"—but finally the stage appeared through the eyepiece, bathed in a greenish glow.

I saw:

Life.

Clustered around the fabric of epidermis that loomed in the eyepiece like a decayed glacier were massive chunks of rock, the ran-

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dom dust particles of any atmosphere, the faint accretion that no washing will completely remove from the human skin. They were featureless, irregular blobs, most of them.

But not all.

Among the dust fragments were a dozen or so living things, sea-urchin-shaped. Under the flaring light of the microscope, they seemed spurred to action. The spines of one touched the spines of another; they flexed and locked. A third blundered into the linked pair, and they became a Laocoön trio.

They were no protozoans or bacilli of Earth. They glowed; they were utterly alien. And as I watched, the trio became six, then ten globes locked together. And at once the character of the action changed: The clustered spheroids seemed to beat their flagella in unison, driving the mass, like eggs trailing from a spawning trout, about the field of vision. Purposefully, the massed ten ran down the other globes and absorbed them, till all were joined.

That was the second time anyone had seen a Venusian.

This time, though, it was with awareness.

I didn't want to go into the reactor room. *I* didn't want to go outside. The Venusian did and somehow we had become . . . tangled.

KATHY, with the reflexes of a doctor, woke easily when I shook her shoulder. She stared fixedly at me.

"Come along," I said. "I want to show you something under a microscope. And I can't begin to tell you what it is because you won't believe me until you see it."

"You, with a microscope," she said scornfully.

But she came.

She looked, blinked, looked again. At last, not moving from the eyepiece, she said softly: "Good God! What in the world are they?"

"Now you prepare a slide from my skin," I told her.

She did, in seconds, and stared at it through the microscope. I knew the — cells? — were going through their outlandish linkup behavior.

"I'm sorry, Mitch," she said doubtfully. "Some sort of pathogenic organism, causing a paranoid configuration—" She swallowed. "I didn't mean to be unfair."

"It's all right." Forgiven, she was in my arms. "But they're—it's not a pathogenic organism. It's a Venusian." I told her about the rock that vanished. "Some of it got carried in with me on the suit, I suppose, and got on me, or into me—I don't know. *But I feel intelligence.* I can sort of

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isolate it, now that I can tell which is it and which is me. I can think of the reactor room in two ways. When it's me thinking, I know it's deadly. When it's *it* thinking, there's—hunger? Yes, I think hunger."

"It lives on plutonium? No, there isn't any on Venus. It has to be manufactured."

I was exploring, thinking of the reactor room, what was in it, what it looked like, what happened there; and noting my—no, its—no, call them *the* reactions that followed.

"Energy," I said softly. "Not material. It wants to be irradiated."

And I thought of the outside. The wind meant nothing to it. The heat meant mild comfort, like air to me or water to a minnow.

But lightning, free electrons and cosmic rays—ah, that was really living!

"Energy," I whispered.

And I thought of the rocks of Venus, the rocks that sometimes exploded and sometimes unwound like balls of string.

"Love," I said almost inaudibly. "Community. The whole that is greater than the sum of its parts. Without hate, without fear—"

Kathy told me later that I pitched forward onto my face in an old-fashioned faint.

XXII

WELL, the grass is still not green. But Kathy and I walked the hundred yards from the ship's skeleton to our hut this morning with only oxygen masks on. The wind was no more than gale force, and it keeps dropping in velocity every week.

Once we found that the Venusians, those incongruous flurries of silicate life, were capable of something resembling thought, we learned what they needed and what they could do.

They needed energy. We gave them energy, from the hot-gas ends of our giant Hilsch Tubes. Maxwell's mythical demon picked the hottest molecules from Venus's air and flung them at the Venusians, who rejoicingly sucked them dry of high-level heat and used the energy so they could reproduce even more prolifically to absorb still more energy.

The water roared down from the upper atmosphere like an ocean falling out of the sky. Now we have seas, and the poisoned atmosphere is being locked in chemical bonds with the soil and the rocks.

We've saved a decade at least, the planners say. And the Venusians are doing it for us. They're feasting themselves into famine on the energy we ripped out of the air for them. They'll never

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vanish completely, of course; as the amount of available energy grows less and less, they'll reduce their numbers and we'll have more and more of the planet for our use, but we'll keep some of them alive out of sheer gratitude.

We cannibalized the ship for our huts and shops, leaving only the giant structural members that we'll be able to work with later—melt them down, I suppose, or cut them up into useful shapes. It's a tidy little community, each couple with a plot of ground and furniture that doesn't have to be rolled or folded out of the way. We're scouting the terrain for sources of metals and minerals, which won't be senselessly scooped out of the ground, manufactured, used and thrown away; they'll be restored to the soil or scrupulously collected and reworked. We can't grow anything yet, but already we have plans for the protection of the rich loam we'll create.

It's a Conservationist world, all right, and it makes sense . . . you take what you need from the planet and put it back when you're through. On Earth, that's the worst kind of radicalism, of course. Being a copysmith, trained in semantics, I keep wondering how I could get my concepts so tangled that I mistook the epitome of conservatism for wild-eyed sabotage, when I know now that any kind of purposeless destruction is almost physical anguish for a Conservationist.

You don't have to be a prophet to see how Venus is developing into a self-sustaining economy. Kathy figured it out: By the time our first-born is of age, Fowler Schocken's commercials will have come true.

—FREDERIK POHL &
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